The Principles and Practice of Filling Teeth with Porcelain.*

By Dr. John Q. Byram, Indianapolis, Ind.

A method of preparing approximo-incisal cavities by cutting a series of reverse curves, as illustrated in Fig. 32, may be used for the preparation of some cavities to prevent frail enamel walls. The advocates of this method claim that this iregular outline results in a less conspicuous line of demarcation between the porcelain and the enamel, and that the series of reverse curves gives the essential acute angle resistance for the porcelain of the inlay. It has been found advisable to drill a hole rootward (Fig. 32 A), which should be about No. 18 gauge. This hole should run parallel with the axis of the tooth and should be from three to five millimeters deep. It should be drilled after the matrix has been properly formed. Then a piece of threaded platinum wire, No. 19 gauge, should be inserted into the hole and permitted to extend about two millimeters beyond the matrix. When the inlay is constructed, the post is attached in the porcelain and offers additional retentive resistance after the inlay has been set (Fig. 32 B).

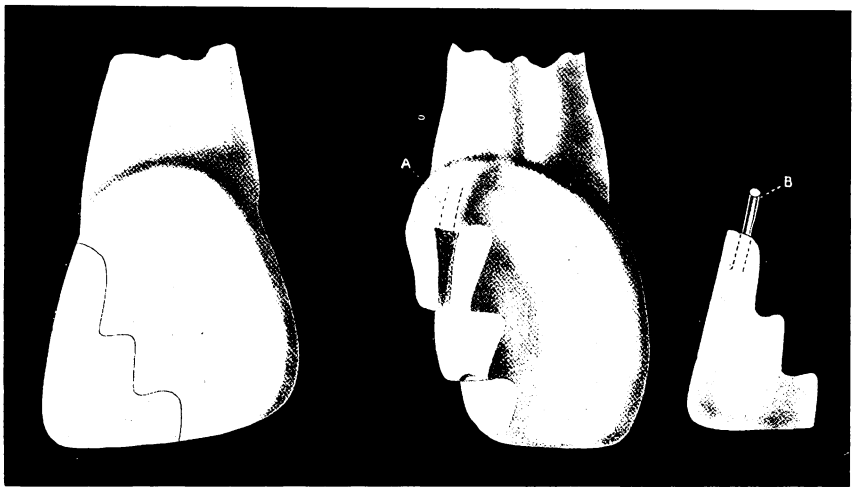


FIG. 32.

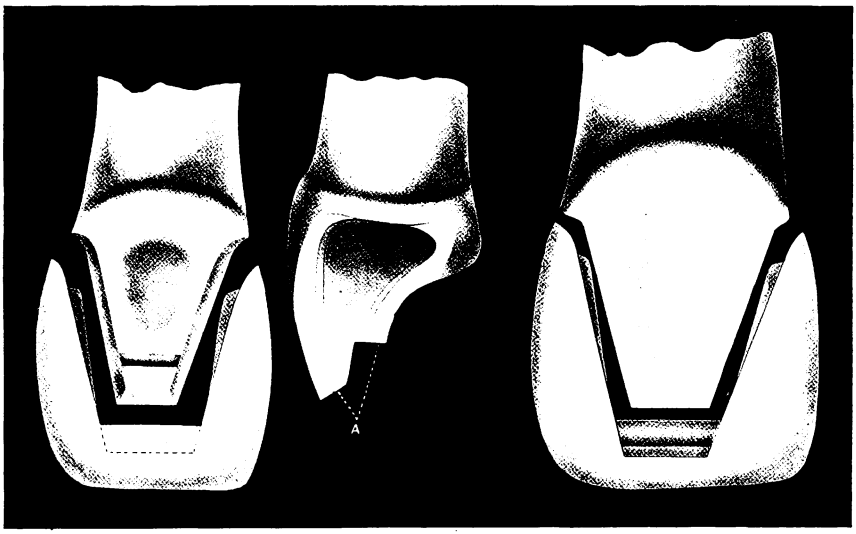


FIG. 33.

Mesio-Disto-Incisal Cavities.

The question may arise with some as to the advisability of inserting these large compound inlays instead of crowning the teeth. It must always remain a matter of personal equation just when to substitute crowns for fillings, but the author believes that a tooth with a vital pulp, presenting sufficient structure to retain a filling for a reasonable period,

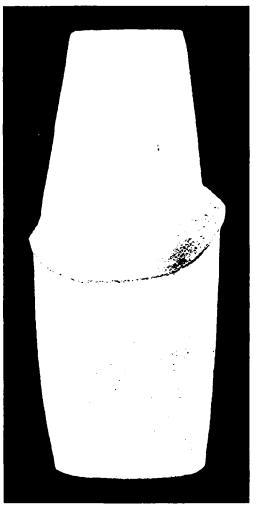


FIG. 34.

FIG. 35.

should be filled. Many times these fillings will last for years and when the filling is lost the tooth presents the same opportunities for crowning that it did before it was filled.

The labial and lingual walls of both cavities should converge toward the incisal edge and their margins should form right angles with the curves of their surfaces (Figs. 33 and 34). Both labial and lingual plates should be involved in the incisal third and the lingual plate should extend farther gingivally than the labial (Fig. 34 and Fig. 35). The gingival walls of both cavities should extend to the gum margin and should run at right angles with their pulpal walls. If the pulp will permit, shallow triangular cavities should be cut between the labial and lingual walls in the gingival third, gradually diminishing in depth through the middle third.

The labial and lingual walls of the cavities should slightly diverge from the pulpal wall. This form of cavity preparation is particularly indicated in the preparation of mesio-distal cavities in lower incisors. The step should be changed so that the labial plate of the incisal edge is involved instead of the lingual, thereby making the resistance from the lingual surface.

FIG. 36.

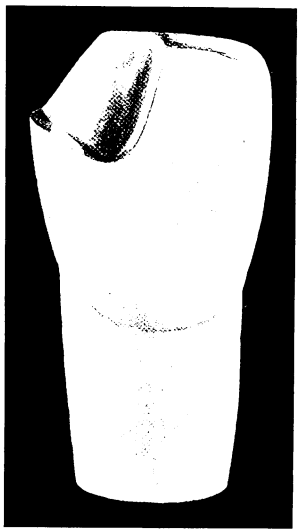


FIG. 37.

Fractures of Incisors.

One of the most perplexing forms of cavities is found in those cases where only a small portion of the approximo-incisal angle has been lost by fracture (Fig. 36). Such fractures can be successfuly treated by forming the cavity on the lingual surface without further involving the labial plate. Fig. 36 shows the labial outline, while Fig. 37 shows the cavity formed in the lingual surface. Enough of the lingual surface should be included to form a step of sufficient area to retain the inlay securely. The labial wall of the step should be flat, while the gingival wall should form a concave surface. The axial wall of the step should run almost parallel with the long axis of the tooth, and it should form an acute angle with the labial wall.

In case of more extensive diagonal fractures of the incisal edge and where the pulp remains vital (Fig. 38), it has been found advisable to

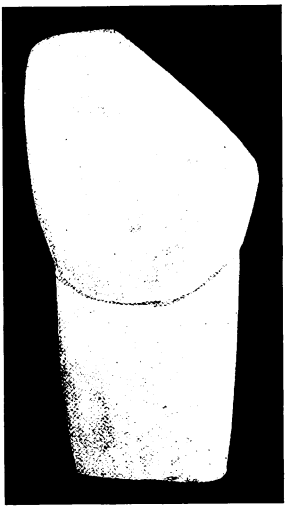


FIG. 38.

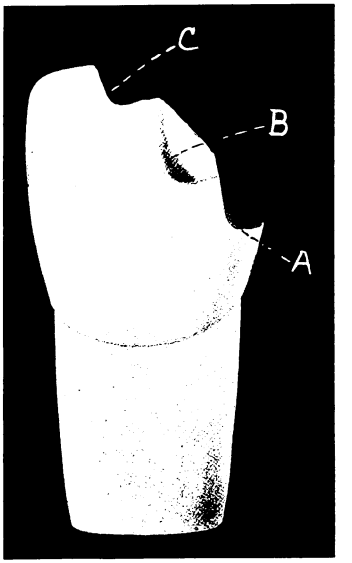


FIG. 39.

FIG. 40.

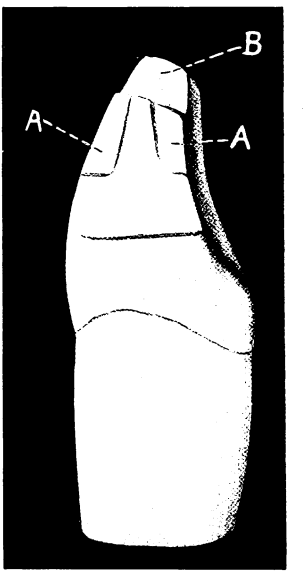


FIG. 41.

protect the pulp by the remaining dentin and to retain the inlay by preparing the cavity with a series of reverse curves (Figs. 39, 40 and 41). Fig. 39 shows the cavity formation for the labial surface and Fig. 40 shows the formation of the lingual. The gingival wall should form a con-

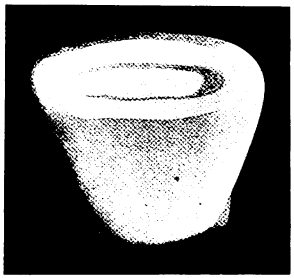


FIG. 43.

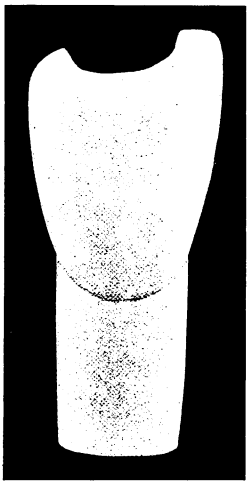


FIG. 42.

FIG. 44.

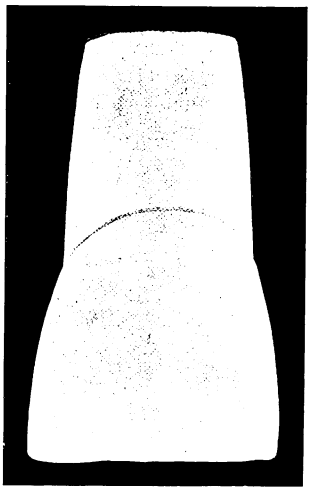


FIG. 45.

cave surface, mesio-distally (Fig. 39A.) Reverse curves should be cut in the labial and lingual plates about midway between the gingival wall and the incisal edge (Figs. 39B, 40B and 41A). A third reverse curve, involving both labial and lingual plates, should be formed at the incisal edge (Fig. 39 C). A shallow groove should be cut between the enamel plates in the incisal region to break the plane surface, formed by the enamel plates, in this region (Fig. 41 B).

In case the pulp is involved, the inlay may be retained by a post inserted into the canal. The margins should be smoothed, after which the pulp-chamber should be so prepared that the matrix may be withdrawn. After the matrix has been constructed, a 16 gauge irridio-platinum post should be inserted through the matrix into the pulp canal. The post should extend far enough through the matrix to give sufficient retention to the porcelain and that end around which the porcelain is fused should be roughened to give it secure attachment.

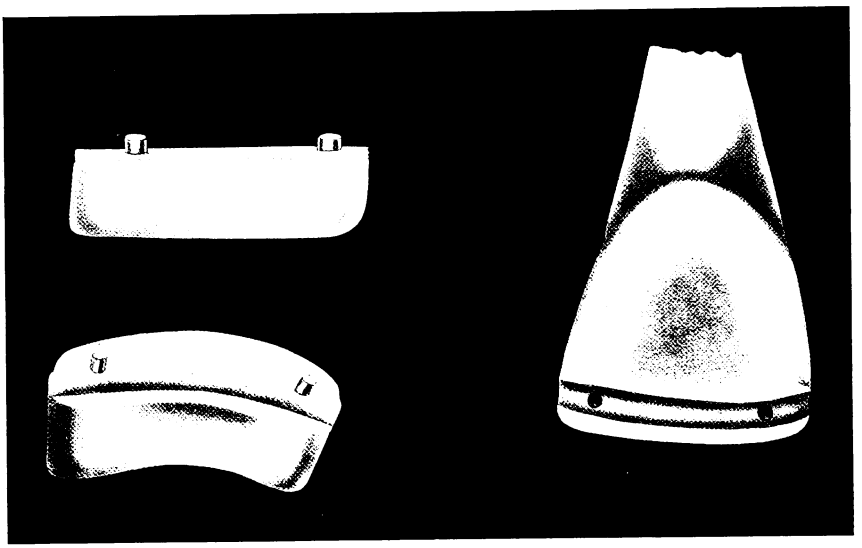


FIG. 46.

Cavities Involving the Incisal Edge.

Simple cavities in the incisal edges of the anterior teeth are usually caused by malformation. The mesial and distal walls of the cavities should extend gingivally from two to four millimeters, and should slightly diverge toward the incisal edge (Fig. 42). They may be slightly grooved between their plates of enamel to resist the lingual stress (Fig. 43). The seat should be flat and should be grooved between the labial and lingual walls.

Another form of cavity preparation for this class of cavities is as follows: Prepare the labial outline as in Fig. 42. The lingual wall should be cut farther in every direction, forming a step (Fig. 44). Two shallow

grooves may be made between the plates of enamel, extending from the seat of the cavity toward the incisal edge in such a manner that they slightly diverge.

Cavities involving the entire incisal edge are very rare (Fig. 45). The inlay must be retained by pins and by a step. Figs. 46 and 47 show a form

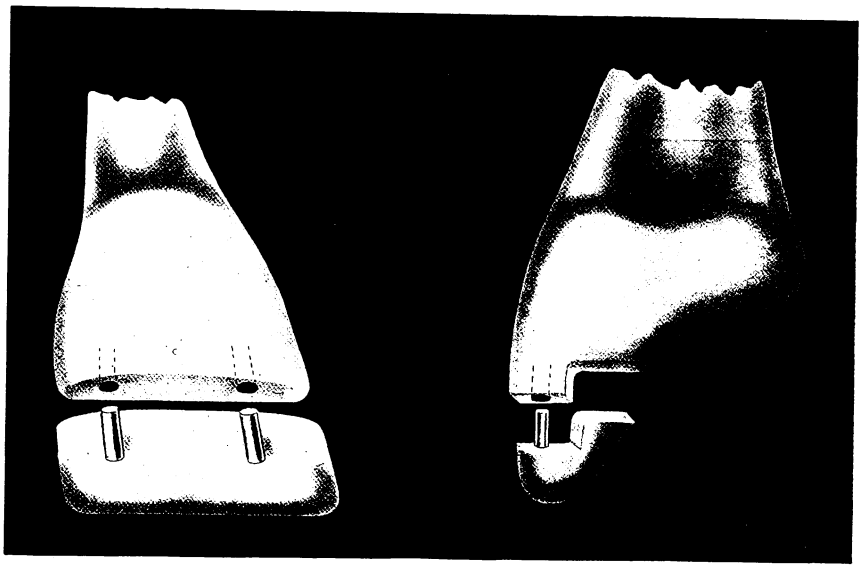


FIG. 48.

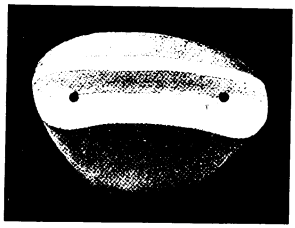


FIG. 47.

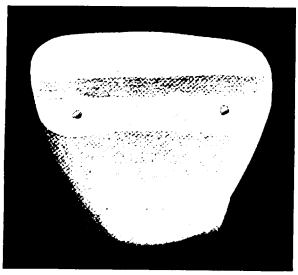
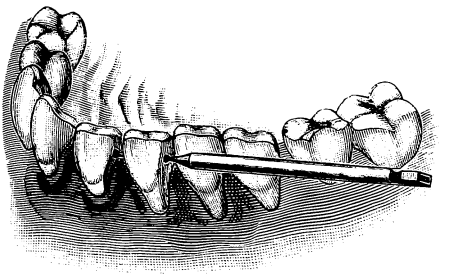


FIG. 49.

of preparation for retaining the inlay by pins. The tooth should be ground until sound structure well suported by dentin is reached, then a V-shaped groove should be cut in a mesio-distal direction across the tooth. The edges of this groove should be so formed that the cavity bevels toward the center, the bevel being at about right angles to the curve

of the surface. After the matrix has been constructed, two holes extending parallel and in a rootward direction, should be drilled with a round bur, No. 18 gauge. Platinum pins, No. 19 gauge, should be inserted in these holes with a matrix in position, and porcelain mixed to a thick consistency should be packed around the heads of the pins and fused to a high biscuit. The matrix should be again adjusted and reburnished.

Figs. 48 and 49 show a form of cavity preparation where a step is cut on the lingual surface. The lingual margins should extend at least two millimeters farther gingivally than the labial and should be cut about one-half the thickness of the incisal end, provided the pulp will permit. Pins may be used with this method of cavity preparation to give additional retentive resistance.



A Splint for Lower Incisors.

F. E. Roach, D.D.S., Chicago.

The splint described herewith is intended especially for very loose lower incisors. Its employment in these desperately loose teeth has proven so very satisfactory to the writer that it is unconditionally recommended where it can be used.

Very frequently patients will present with one or more lower incisors almost ready to drop out, and yet by a little treatment and fixation they may be made useful for some time.

The means of supporting these teeth have been numerous and many of them valuable, but so far as the writer is aware, the method herein described is new, and for that reason a detailed description is given.

The illustration shows a case where the left lower incisor was very loose, the outer incisors were quite firm, and to secure fixation of this one tooth, it was pulled forward (labially) sufficiently to permit drilling a hole through it mesio-distally—drilling from the distal side—the tooth being held firmly between the thumb and forefinger of the left hand while drilling.

Upon pushing the drill through, start the hole in the adjoining tooth, after which the drill may be withdrawn and the loose tooth held back lingually while the hole is drilled deeper into the other tooth. In this case the hole was not drilled through, but in case the right central had been loose the hole would have been carried into and nearly through the right central.

A piece of platinum wire No. 20 gauge slightly threaded was passed through left central into the right central and cemented to place. The teeth should be properly placed with reference to articulation and alignment before cement hardens.

Usually these teeth can be drilled through without encroaching upon the pulp or causing any considerable pain. In cases where devitalization has been necessary, this form of fixation is frequently given preference.

The advantages of this splint are simplicity of application, avoidance of display of metal, minimum mutilation of teeth and elimination of lingual obstruction.

Spinal Anesthesia from the Standpoint of the Patient.

By JOHN S. MARSHALL, M.D.,
Examining and Supervising Dental Surgeon, U. S. Army.

In relating my personal experience, as a patient, with spinal anesthesia, I do so with the hope of adding something to the knowledge of the physiological effects of cocain when used in this manner for producing insensibility to pain in surgical operations.

Spinal anesthesia has at the present time but few advocates in the profession, and will I think, for obvious reasons, never become popular with the public; nevertheless, it is a safe and valuable mode of producing anesthesia in certain cases, and should, therefore, be accorded the recognition which its successful use in hundreds of cases entitles it to receive at the hands of the profession.

After witnessing several operations made upon various portions of the body by Dr. Morton, of San Francisco, in which this method of anesthesia was used with apparent success, I became interested from the standpoint of the oral surgeon, and determined to try it myself upon the first suitable case presenting that required operation upon the maxillary bones. After several months a patient presented who had a fracture of the mandible that required extensive wiring, and with the consent of the patient this method was tried. It, however, proved a signal failure, as the patient declared there was no insensibility to pain nor the slightest anesthesia in the upper extremities, neck or head.

Maj. J. M. Kennedy, surgeon U. S. A., who assisted me at this operation, had similar experiences in other cases in which he had used this method of anesthesia. He, however, was generally successful in producing complete anesthesia in those portions of the body that are supplied by the sacral plexus, and the only unpleasant symptom encountered was a persistent headache, continuing sometimes for two or three weeks after the injection.

My interest in this method of producing anesthesia was so great that I determined, should it become necessary for me to submit to a surgical operation, to insist upon the use of spinal anesthesia, that I might have the opportunity of studying its effects from the personal and practical standpoints, and thus settle in my own mind at least its merits and disadvantages.

On January 11, 1907, it become necessary for me to enter the U. S. Army General Hospital, Presidio, San Francisco, for an operation for double inguinal hernia.

This disability was of long standing having been incurred in a railroad accident in 1864, while en route to the front with my regiment. I am at this date sixty years of age: heart, lungs and kidneys in a normal condition, and in all other respects in perfect health and condition. The operations were performed by Major Kennedy, assisted by Captain Shaw and Lieutenant O'Conner, assistant surgeons U. S. A.

Technique of Spinal Anesthesia.

The patient after being prepared for the operation is seated upon the operating table and told to lean forward and arch the back as much as possible. This separates the vertebræ, dorsally, to the fullest extent. The lumbar region is then thoroughly scrubbed with soap and hot water, washed with bichloride solution 1 to 1000, followed with alcohol. A hypodermic syringe, glass barrel, with piston down, which has been previously sterilized and charged with one grain of sterilized tropa-cocain (the usual dose), is now handed to the

surgeon and the needle inserted between the third and fourth lumbar vertebræ and carried forward until it enters the spinal canal; the piston is then gradually withdrawn until the barrel is filled with the spinal fluid, which is allowed to remain until the cocain is dissolved. This takes but a few seconds, and the piston is then as gradually carried to its former position, returning the fluid charged with the cocain to the spinal canal. The needle is then withdrawn, the puncture washed with alcohol and sealed with collodion.

Physiological Effects of the Injection.

The introduction of the needle is no more painful than for an ordinary hypodermic injection. Upon withdrawing the spinal fluid from the canal a slightly painful sensation, like that from heavy pressure, was experienced. This was doubtless due to the establishment of a partial vacuum within the canal, as the pain immediately passed off upon the return of the spinal fluid to the canal. As soon as the needle puncture was dressed I was laid upon the operating table and the area of the operations again cleansed.

In about one minute after the cocain was injected a sensation of numbness was experienced in the toes; at the end of two minutes this sensation had extended to the knees; and in three minutes it had reached the umbilicus. Accompanying the numbness in the legs was a sensation of *great* weight. It seemed as though they weighed tons, and that by the greatest effort it would be impossible to move them, yet upon making the attempt to move the toes and to flex the legs at the knee it was found that motion was not impaired.

The operation upon the right side was now begun, and the tissues proved to be completely anesthetic. While the operation was in progress I was studying the further effects of the cocain upon other portions of the body.

In five minutes after the injection, numbness was experienced in the fingers and hands. Sensation was entirely suspended in the third and fourth fingers of both hands, but anesthesia was not complete in the thumb nor in the first and second fingers. No sensation of weight was experienced in either of the hands or arms, and although a slight numbness was experienced from the shoulders downward to the hands, there was very little diminution of sensation in the shoulders, or in the region of the brachial plexus. The neck and head were in nowise affected by the drug, sensation remaining complete and unimpaired in these portions of the body. In about twenty minutes after the introduction of the cocain sensation was completely restored in the fingers, hands and arms.

The operation upon the right side was unusually prolonged on account

of the complicated nature of the hernia, viz., direct and oblique combined, and numerous adhesions of the hernial sac with the walls of the inguinal canal. The time consumed in this operation was just thirty minutes. No sensation of pain was experienced during this operation until the introduction of the first superficial suture. It was very evident from the increased pain caused by the introduction of the other three sutures that the anesthetic effect of the drug was rapidly passing off and that in all probability the operation upon the left side would be somewhat painful. I was, however, willing to endure this rather than to take a second injection, or to postpone the second operation to a further date, as I was anxious to have the whole surgical procedure completed at that time, and, furthermore, I desired to carry out my study of the effects of the drug to the end. I therefore requested the surgeon to go on with the second operation, assuring him that I could endure it, and that I would not flinch under the knife.

I nearly repented of this, however, in the next few minutes, for the first touch of the knife was quite painful, and gradually increased in severity as the operation progressed.

The most painful part of this operation was the tying of and amputating the hernial sac. At this time I experienced a nauseating and sinking sensation in the region of the solar plexus and for a few moments I feared that I was about to lose consciousness. A few inhalations of spirits of ammonia, however, gave me the necessary stimulation to prevent a loss of consciousness, and I was not again troubled with faintness.

At this time I noticed that the sense of great weight in the legs had entirely disappeared and that numbness was now only distinguishable in the toes. The suturing of the deeper tissues was exceedingly painful, and it seemed to me that the anesthesia had entirely passed off in this region of the body. Before the deep sutures were all in place the numbness had entirely passed from the toes, as was proved by the fact that when moved against each other the sensation appeared to be entirely normal. At this period my courage for a moment failed, and I begged for a few inhalations of chloroform, but was assured that the operation would be completed in five minutes, so took a new grip upon myself and endured to the end.

The second operation consumed just twenty minutes. There were no complications encountered in this case, and as I was suffering so acutely, every one connected with the operation worked as rapidly as possible, that they might the sooner bring my suffering to an end.

The whole surgical procedure consumed just fifty-five minutes: three for the anesthesia and fifty for the operations. At no time while under the anesthetic effect of the drug was there any acceleration or

diminution of the heart action or respiration; neither was there any stimulation nor depression of the mental faculties. The headache so frequently complained of for several days or weeks did not occur in my case. The only unpleasant after effects experienced from the operations was the accumulation of gas in the stomach and bowels, that so frequently follows abdominal operations and which is in no way related to the kind of anesthetic employed.

Conclusions.

From this experience with spinal anesthesia I am led to the following conclusions:

First.—That spinal anesthesia is a safe and reliable method of producing insensibility to pain in certain surgical operations in normal individuals.

Second.—From the fact that this method used with the usual dose does not seem in any way to disturb the cardiac or respiratory nerve centers, it would be indicated in those cases in which chloroform and ether would be contraindicated.

Third.—That for all operations below the diaphragm which do not consume more than thirty minutes for their completion it is a most admirable method of anesthesia.

Fourth—In operations above the diaphragm it would seem to be of doubtful utility with the dose usually employed. Morton is in the habit of making the injection with considerable force and elevating the lower extremities when using this method if the operation is to be upon the upper portion of the body, and he claims to be successful. In the case referred to in the body of this article as having fracture of the mandible, Morton's method did not give the desired result. It is possible, however, that by increasing the dose, anesthesia of the head might be successfully secured, but as I have had no experience with a larger dose than one grain, I would not hazard an opinion upon it.

Fifth.—It would not be wise to use this method of anesthesia in the case of patients who have a great nervous dread of surgical operations and in whom the consciousness of being operated upon might produce mental shock, or in the case of patients who could not be controlled by reason.

Some Suggestions for Dental Colleges.

By L. P. Haskell.

During the seventeen years of the Haskell Post-graduate School, graduates of nearly all the dental colleges have taken the course, many

of whom have been in practice for years, and yet at least seventy-five per cent. of them have never put in the mouth a metal plate.

So far as I could learn, the reason therefor was that the instruction in the line of work was so imperfect they had not sufficient confidence in their ability to construct such a denture to venture to recommend it to their patients, and so resorted to the vulcanite plate. I will suggest some of the causes leading up to this state of affairs.

Too much of the student's time is taken up in the lecture room in the effort to tell him how to do some mechanical thing. It is all labor lost. The only place to teach it is at the bench, tools in hand, under the eye of a *competent, experienced* demonstrator, for it is too often the case that the demonstrator is inexperienced. Then again he should be constantly on the alert, watching the students and taking the work in hand if necessary.

Instruction too often is not simplified, and much of the student's time is taken up in fruitless efforts to do what should be made a simple thing. I will illustrate some points:

The student should be told to make his model flaring so it will drop from the mold; it should never be lifted out.

Abandon the use of the Bailey flask for molding ring, for it is too small and ill-shaped for proper work. Provide a ring five inches in diameter and two and a half inches deep. The Buffalo Company have such a ring, also the Justi branch house. A small wood potato masher with knob whittled off, will serve to use at the sides of model and large end on top.

Each student should have a molding box fifteen inches square, six inches deep. Buy a can of Chase oiled sand, use Babbitt metal, two pounds, counter die metal, four pounds, five parts lead, one part tin: this not to be poured hot as it comes from the heater, but stirred until it begins to crystallize, then pour quickly, having coated the die with moist whiting dried and placed where it came from in the sand mold, but inverted, and the sand pressed with the spatula to just above where margin of plate would be; then place over it the Bailey flask.

Do not use German silver for plates, but soft brass, gauge No. 28, cut in strips two and a half inches wide.

Do not set the student to work with the usual horn mallet with its pointed end, which is worthless, and its large end equally worthless. Saw off the pointed end where it is three-quarters of an inch in diameter and round it with the rubber file. This is ready for use on the palatal surface and along the margins. After swaging the tuberosities and palatal surface, cut a slit from the margin at the median line to the top of the ridge, lap, swage and solder, laying the solder on the inside

and applying the heat on the outside, previously prying apart the lap and applying the borax in plenty, swaging again. The reason for cutting and lapping is two-fold; here is the weakest point where the plate often breaks. The lapping increases the strength one hundred fold. Then again, in undercut conditions much time and bother is saved. There is no valid reason for not cutting and lapping.

To prevent the base metal from adhering to the plate, oil the dies, and before annealing again wipe off the base metal.

Wiring the plate is simple. Attach the wire along the right margin for about an inch with two small iron wire clamps, doubling the wire with flat-nosed pliers, so as to have a loop at the bend. Having flattened the ends, borax and solder, fitting with the pliers to the margin of the plate an inch and a half at a time, with plate on the die; clamp and solder fully till completed. Be sure the borax is plenty or the solder will not flow, and the wire will melt. When soldered, file the margin to a finish. Use a six or seven inch file, half round, No. 3, with handle.

The student following the directions will have no trouble and expedite work.

It is just as easy to fit successfully a metal plate as a vulcanite one; in fact, in the flat ridgless jaw, more easy.

Gold Inlays for Incisors and Cuspids, A New Method.

By J. Allen Johnson, D.D.S., Middletown, Del.

In many of the cases of badly broken down cuspids and incisors coming under our observation, the bite is such that the use of porcelain for the restoration of corners is contraindicated; not that we do not possess adequate skill, but the limitation of the tensile strength of porcelain is such that we feel that such a restoration will ultimately result in a failure. This is especially true where the patient is of a vigorous temperament and a pipe smoker.

It is the purpose of this article to deal with those cases wherein the process of decay has gone to the point where devitalization is indicated as a conservative operation, although the inlay method herein described may as readily be applied where the pulp is vital, retention being attained, as with the porcelain filling, without the screw-post.

We will take as our first illustration a superior central incisor having a very large mesio-incisal cavity, pulp removed and apical foramen scaled.

After reaming out root canal to readily take a platinous gold post, gauge 14 to 16, prepare the cavity as you would for a porcelain filling except that the mesio-incisal corner should be slightly beveled to afford extra protection to the enamel edge. You will now take an impression of the cavity with dental lac and obtain a die or cast of the cavity in the inlay metal for sale by the S. S. White Dental Manufacturing Company. This die or cast in the swaging ring is placed in the inlay swager and 36 gauge pure gold is swaged over it. The inlay matrix thus obtained should be returned to the tooth cavity and burnished to an exact fit.

Having the matrix in place the platinous gold post is pushed through to a position in the root canal and hard (or sticky) wax flowed around post on floor of matrix to unite them in order to facilitate their withdrawal without change of position. After investing the canal portion of post and the under side of the matrix, flow 22 k. solder around post to replace the wax on the floor of the matrix. Replace matrix in tooth cavity and cut off excess of post.

With hard wax now restore the tooth to full contour (less the thickness of 36 gauge plate), giving the wax a glazed surface by means of hot air.

From 36 gauge 24 k. plate, cut an oblong strip, sufficiently long to cover cervical margin of cavity and extend one-eighth of an inch below the incisal edge, and wide enough to extend from the labial margin and cover the mesial surface of wax.

This strip is now placed between the wax filling and adjoining tooth, and with the fingers and double end burnisher is brought smoothly over the wax, cutting the lower edge, to facilitate the restoration of the contour. The assembled parts are carefully removed from cavity and lightly invested, so that the heat directed from below will flow the 22 k. solder dropped through the opening on lingual surface.

After trimming the inlay with curved shears it should be cemented in cavity where with stones and disks the operation is concluded. The total time consumed should not exceed one and a half hours, regardless of the size of the cavity.

The very secure anchorage of an inlay or filling having a post makes it an ideal abutment in the centrals and cuspids for the support of a lateral incisor.

SOCIETY PAPERS

The Physiological Action of Some Local and General Anesthetics with a Comparison of their Practical Value.

By Henry H. Boom, M.D.

Read at the Meeting of the Southern Dental Society of the State of New Jersey, at Camden, N. J., on March 20, 1907.

From the advent of surgery, the humane operator has sought for means to render his patient non-resistent to necessary manipulation, and to relieve, as fully as possible, the pain occasioned by his treatment. In the records of early and crude surgical work we find that a number of expedients were used for this twofold purpose.

Bleeding the patient until, from loss of blood, fainting occurred was a highly commended procedure preceding the reduction of a dislocation.

A number of drugs were employed, often in poisonous dose, to secure a condition of the patient favorable for the surgeon's work.

Even within the last half century the unfortunate patient was first made gloriously drunk, and then positively poisoned with alcoholics, to secure in him a passive or relaxed muscular condition, with an accompanying insensibility to pain.

All such measures were, of course, followed by effects which frequently made the work of the surgeon more harmful than beneficial to the patient.

First Experiments in Anesthesia.

The history of anesthetics carries us back to the latter part of the eighteenth century, when, in 1776, the Rev. Joseph Priestley, of Birmingham, England, first prepared nitrous oxid gas and de-

scribed some of its properties, and in 1798 Sir Humphrey Davy, then twenty-two years of age, prepared and inhaled nitrous oxid gas to lessen the pain accompanying the eruption of a wisdom tooth.

In 1842 Dr. Crawford W. Long, of Georgia, used ether by inhalation for producing anesthesia for surgical operation. On December 9, 1844, at Hartford, Conn., a popular lecturer, Dr. Colton, gave a lecture upon the chemistry of nitrous oxid and other gases, having among his audience two young dentists of that city, Horace Wells and John Riggs. Several of the audience were invited by the lecturer to inhale the gas, and one, a young man, received a severe injury while recovering from the anesthetic, yet suffered no pain from his mishap, which so impressed Wells that on the following day he, accompanied by his friend, visited Dr. Colton, inhaled the gas, and while unconscious had a molar painlessly extracted. In 1846 Dr. W. T. G. Morton, a dentist, used ether for dental extractions and major operations. Sir James Young Simpson used chloroform in 1847 for anesthetic purposes.

The further history of anesthetics, local as well as general, is interesting, but hardly in place in a paper of this character.

An anesthetic might be defined as an agent which, without impairing the performance of the vital functions of circulation and respiration, produces absolute unconsciousness with insensibility to pain, loss of power over the voluntary muscles, and diminution of reflex excitability.

It is obvious that the agents grouped as local anesthetics would be better named as analgesics or agents for the relief of pain.

Local Anesthesia.

Local anesthesia, over restricted areas, may be brought about by, first, the application of intense cold, usually through the rapid evaporation of volatile substances applied to the part; second, the local application, or injection, of drugs. The advantages of local anesthesia over general anesthesia are summarized by Dr. Thomas D. Luke in his recent work "Anesthesia in Dental Surgery" as:

1. The lower rate of mortality.

2. There is no need for assistants (or witnesses in the case of female patients), as, there being no period of excitement or struggling, the patient need not be held.

3. The analgesia lasts long enough to prevent the patient feeling the after pain of the extraction.

4. No apparatus of a complicated character is required.

Refrigerating agents used to produce local anesthesia include chlorid of methyl, chlorid of ethyl, and various proprietary preparations, as anestile (Bengue), coryl, etc., containing varying proportions of the methyl and ethyl chlorides.

Methyl Chlorid.

Chlorid of methyl is retained in liquid form only when inclosed in strong metal bottles. When it is to be used a small quantity of it is mixed with ether and applied by a cotton tampon, with a wooden handle, to the gum for from one to two minutes, when, on its removal, a white spot will be seen upon the mucous membrane and the gum will be insensitive.

A spray of chlorid of methyl upon the gum occasions so marked a lowering of temperature—58 to 70 degrees Fahrenheit—that it is unsafe, as it may produce a marked disorganization of the tissue, even to the formation of a complete eschar.

The addition of ether lessens its too great refrigerating effect, but at the best it does not prove so efficient to the dentist as the ethyl compound.

Ethyl Chlorid.

Chlorid of ethyl is usually sold in glass cylinders holding one to two ounces of this very volatile liquid. These containers are often made of metal. They terminate at each end in capillary tubes, the one used as the exit tube having a very small opening.

In using chlorid of ethyl the surface of the gums is dried with cotton and the fauces are protected with cotton, when a spray from the capillary opening of the tube is directed upon the gums, holding the tube twelve inches from the face, until a white patch appearing shows the accomplishment of the freezing. The use of the agent now stopped, the operator waits until the natural color is regained before extraction.

Chlorid of ethyl is useful when a number of loose and fragmentary roots are to be removed.

Refrigerating agents are not to be employed:

1. When the patient can only breathe with difficulty through the nose.
2. When the patient is a young child or is nervous and timid.
3. If the tooth to be removed, or one close by, is sensitive to cold.
4. When the pain produced by the extraction may last a long time, as in acute periodontitis, an extensive extraction, the removal of a large molar with separate roots.
5. When the tooth to be removed is a second or third molar.
6. Freezing agents are especially contraindicated for the extraction of the lower molars, more particularly when the patient has a tendency to the excessive secretion of saliva.
7. Freezing methods are inadmissible when the actual cautery is to be used.

In some instances it may be advantageous to combine the use of refrigerating methods with the employment of cocain or other drug.

Local Application of Drugs for Analgesia.

The drugs employed locally for relief of the pain of extraction include cocain, eucain, tropacocain and many patented artificial alkaloids, as stovain, holocain, nirvanin, anesthesin, alypin, subcutin, acoin, etc. With most of these adrenalin may be combined. Cocain as cocain hydrochloridum has unquestionably the largest use for allaying pain of extraction of any of these agents.

Cocain.

This, and allied substances, when in solution, readily and rapidly diffuse through mucous surfaces, upon which they are applied, so, according to Horatio C. Wood, "it is not safe to put upon mucous membranes quantities which if given hypodermically would be dangerous, so that not more than three-quarters of a grain should be used locally.

Potter states that in general action cocain and its salts very closely resemble atropin: its symptoms almost parallel those of sparteine: it is very nearly a complete antagonist to morphin, especially in the second and third toxic stages of the latter. Hare tells us that loss of speech, blindness, nausea, vomiting, syncope, unconsciousness have followed the local, as well as the internal, administration of cocain. He also makes the statement that of two hundred and fifty cases of accidenta poisoning from cocain but thirteen proved fatal.

In the last edition of his work on therapeutics Prof. H. C. Wood gives the following summary of the physiological action of cocain:

"It is a cerebral stimulant producing peculiar mental excitement, ending, after a toxic dose, in narcosis, with epileptiform convulsions probably of centric origin.

"In the poisoning there is at first increased reflex activity, followed by paralysis of voluntary motion and of reflex activity, which are chiefly due to a direct action upon the spinal cord, the sensory side of the cord being probably more sensitive to the drug than the motor side.

"Toxic doses depress and finally paralyze the sensory nerves, and, in a much less degree, the motor nerves.

"Cocain in moderate dose is a mild stimulant, in overdose a depressant to the circulation, the primary rise being chiefly due to the narrowing of the blood paths by stimulation of the vasomotor centers.

"Upon the heart itself the moderate dose of the alkaloid acts as a stimulant, increasing to a slight extent the amount of force put forth by the heart.

"There is also reason for believing that cocain exerts a direct influence upon the coats of the blood vessels, which is of so feeble a char-

acter as to be of practical importance only in the local use of the remedy.

"The fall of blood pressure produced by the toxic dose of cocain appears to be due to a direct depression of the heart itself, aided by a widening out of the blood paths, probably through paralysis of the vasomotor centers.

"Upon striated muscle cocain appears to have a peculiar though very feeble action.

"It has no definite influence upon the amount of urine secreted.

"On the eye it acts energetically as a mydriatic.

"It is a powerful stimulant to the respiratory centers, increasing the rapidity and fulness of respirations; but if the dose is sufficiently large it, after a time, causes the respiration to become very shallow and finally it paralyses the respiratory centers.

"Moderate doses are said to increase, large doses to paralyze peristalsis."

The dosage of cocain is as follows:

Internally, one-sixth to one-half grain; locally, in from one to ten per cent. solution, of which never more should be applied to mucous surfaces or injected than would represent one-half to three-quarters of a grain of the drug.

Toxic Symptoms with Cocain.

Toxic symptoms produced by cocain are thus described by Thomas D. Luke: "Trembling in the limbs, especially the lower extremities; headache; vertigo, pallor; a cold moist skin, feeble rapid pulse; which in grave cases becomes imperceptible; slow shallow respirations, incoherence of speech, nausea, vomiting, unconsciousness, tremors, and other muscular spasms, epileptiform attacks, dilated and unequal pupils, and disturbances of the circulation, ending in dyspnea and death by asphyxia."

Prof. H. C. Wood groups the toxic symptoms in the following manner: "In the mildest cases of cocain poisoning—great restlessness and nervous excitement with a condition of terror, pulse usually accelerated, and respirations increased in frequency, with, perhaps, muscular twitchings or even slight convulsions.

"In severe cases—nausea, vomiting, rapid almost imperceptible pulse, marked perspiration, collapse, with or without loss of consciousness."

"Other cases have presented a pulse slow and feeble, cyanosis, respirations slow, almost arrested, pupils are usually dilated, but exceptions are noted.

"After very large doses of cocain, convulsions are usual, often violent, with pronounced opisthotonos; mania may occur, with hallucina-

tions. Treatment of poisoning from cocain must be conducted along one of two almost diametrically opposed lines, according to whether the symptoms presented be those traceable to cardiac or respiratory failure, or whether they be largely those referrable to the nervous system."

Treatment of Toxic Symptoms by the Dentist.

The dentist will find the majority of such cases coming under his attention to be of the syncopal character, and he will treat them by placing the patient in a supine position with the head low, giving a hypodermic injection of digitalin (1-64 to 1-32 of a grain), or of strophanthus (10 minims of the tincture), and at the same time administer aromatic spirits of ammonia or whiskey by the mouth. The patient should be kept warm, and, such means failing to overcome the condition, the intravenous injection of ammonia and of saline solution and the employment of faradism will be properly conducted by a competent medical confrere.

The treatment of cocain poisoning in which the nervous symptoms predominate is conducted along the lines mapped out in cases of strychnia poisoning: chloroform is administered by inhalation until a partial degree of anesthesia is secured; for the relief of convulsions chloral is administered cautiously by the mouth or in enema: bromid of potassium may be employed in large doses, and warm baths may prove of service.

At the fourth International Congress of Dental Surgery held at St. Louis, Dr. Sauvez, of Paris, made the positive statement that "if more than a cubic centimeter (16 minims) of a one per cent. solution of cocain is used the patient should be placed in the supine position, and should remain resting for a considerable time after the operation is completed."

Adrenalin Combined with Cocain.

Adrenalin, as adrenalin chlorid, is sold in solution of a strength of one part in the thousand. This substance is a remarkable vasomotor constrictor, and when its 1-to-1000 solution is applied to a part admits of operation upon that part unattended by loss of blood.

The addition of adrenalin to cocain solution exhibits the following advantages: It renders the region to be anesthetized bloodless; it increases the local action of cocain, while lessening its constitutional action; analgesia is practical in soft and inflamed tissues, and is more pronounced and lasting in healthy ones; no bleeding follows the extraction of the tooth, no syncopal or cerebral symptoms occur as sequellæ (Battier and De Nevrez). The composition of this combined solution for dental use may be:

One part of cocain hydrochlorid.
Five parts of the 1-to-1000 solution of adrenalin.
With water to make 100 parts.

Eucain.

Eucain as a local analgesic has to a considerable extent replaced cocain.

Eucain is an artificial alkaloid and occurs in two modifications, the alpha and beta eucain. The latter is the preferable, being less of an irritant than the alpha eucain.

The chief advantages claimed for eucain are tabulated by Luke ("Anesthesia in Dental Surgery") as follows:

1. It has only one-fourth the toxicity of cocain.
2. Its exhibition is followed by no unpleasant nor dangerous after effect.
3. Its action is more constant and lasting than that of cocain.
4. It does not undergo decomposition on boiling, and so can be rendered permanently sterile in solution.
5. Its price is but half that of cocain.

It is, however, less soluble than cocain, more irritating, slower in action, so that after its injection for an extraction the operator must wait at least ten minutes.

An addition of adrenalin to eucain solution largely overcomes its irritant action.

Its dose, 15 to 20 minims of a two per cent. solution, is sufficient for the extraction of a single tooth.

Parke, Davis & Co.'s "eudrenin" is a sterilized solution of B-eucain with adrenalin. Wohlgemuth, Pouchet and Sauvez each state that they hae found eucain as toxic as cocain and less efficient. Reclus has used eucain on over four thousand occasions without bad effect.

A formula of eucain solution of frequent use is:

B-eucain hydrochlorid .....3.5 grammes
Natrium chloridi .....7.0 grammes
Distilled water (boiling).....to make 500 cubic centimeters

Stovain.

Stovain is the trade mark of a synthetic derivation of the amino-alcohols. Potter states its toxicity to be but half of that of cocain. It is not injured by boiling, but is destroyed by alkalies; it can not be combined with adrenalin. Unlike cocain, it can be used with some freedom while the patient is in a sitting position. It is employed in a three to four per cent. solution in distilled water.

Tropa-Cocain. Tropa-cocain is said by Potter to be less toxic than cocain. Sauvez declares it as toxic and less efficient than cocain. Dorn, a German dental surgeon, reports its use in over three hundred cases with good results, and in no case with toxic symptoms. He uses it in three to four per cent. solution, injecting from ten to thirty minims in three to five punctures, in the direction of the roots of the teeth. The analgesia obtained lasts about ten minutes.

Anesthesin. Anesthesin, the ethyl-ester of paramido-benzoic acid, insoluble in water, but soluble in alcohol, ether and oils, is less toxic than cocain: analgesia from its use lasts longer.

Nirvanin. Nirvanin, a patented coal tar derivative, has but one-tenth the toxicity of cocain (Potter), can be sterilized by heat, is antiseptic, non-irritant, and is used in two to five per cent. solution in water.

Ethyl Chlorid. Ethyl chlorid, as a general anesthetic, has, within the last few years, been widely extolled as an efficient safe anesthetic, whose effects, like those from nitrous oxid, are of but short duration.

In a study of its physiological effects Professor Hare describes it as an agent producing, by an inhalation of from one to two drams, an anesthesia lasting five to ten minutes. During the anesthesia the pupillary and corneal reflexes are not lost, muscular relaxation is absent. The after effects are slight, vomiting occurring in a few instances. A study of one thousand six hundred administrations of the agent by Seitz shows but one death, an individual suffering from disease of the coronary arteries.

Dr. H. C. Wood mentions a collection of eleven thousand two hundred and seven cases by Ware showing but one death traceable to this agent.

Professor Potter describes ethyl chlorid as rapid, efficient and safe, for short operations, if used with exclusion of air. The anesthesia is produced in from one to two minutes, when the inhalation is discontinued; the risks are slight, even in patients with unsound heart or lungs; it does not produce muscular relaxation.

Its mortality is one in fifteen thousand cases. It may give rise to erotic sensations resulting in false accusations, and should not be used for women except in the presence of a witness.

We might continue to cite laudatory notices of this comparatively new anesthetic, but it is time that we examined the reverse of this pleasing picture, when we find in a recent publication (Dr. Thos. D. Luke's

"Guide to Anesthetics," 1906) a list of twenty-four deaths ascribed to ethyl chlorid used by inhalation. Eight of these deaths occurred during dental operations.

Those who use ethyl chlorid insist upon the necessity of excluding air during the administration. It is not as safe as nitrous oxid, but when used in proper amount and its length of administration carefully gauged it is probably far safer as an anesthetic than ether or chloroform.

Some New Ideas in Porcelain Work.

By Dr. LIONEL M. HOMBURGER, New York City.

Read before the Central Dental Association of Northern New Jersey.

Your committee asked me to read a paper on the removable post all-porcelain crown which I had the pleasure of exhibiting some time ago. This I promised to do, but as the handling of a single subject like that would necessitate an abnormally short paper, I decided to call my paper, "Some New Ideas in Porcelain Work," and to incorporate some other thoughts as well, which I hope will be of interest as well as bring out a very instructive discussion.

We all know how impossible it is to accurately fit one of the ready made porcelain crowns, at present on the market, to the root of a tooth, by means of grinding. True it is that we can build up these crowns to accurately fit the root by means of porcelain, thus making a close-fitting joint. But if we overcome this difficulty we meet another due to the fact that the molds from which these crowns are made are limited in number. Therefore the selection of both shade and shape is not as easy as, for instance, in choosing plain porcelain teeth for vulcanite plates.

For some time past I have employed the following method which surmounts all these difficulties.

Method of Making Porcelain Crown.

The root is prepared in the usual manner, and then a piece of inlay platinum burnished over the root end. A piece of round iridio-platinum wire, of suitable length, thickness and strength for the post of the crown, is rolled up in some platinum foil, in the same manner that a stick of candy is rolled up in paraffin paper. This is thrust through an opening previously made in the platinum, over the end of the root. These two pieces are now cemented together with sticky wax, so as to hold them in proper relation. A rubber tooth is now selected of the correct shade and mold, and ground and fitted to the patient's root. This fitting completed, the pins are bent around the post

by means of a pair of pliers. The whole is then carefully removed from the mouth and the root of the post invested in equal parts of plaster of Paris and very finely ground silex. The investment is carried up to the platinum floor and then trimmed so that it will stand with the incisal edge of the porcelain tooth pointing upward. The sticky wax is removed and the tooth packed with porcelain of the correct shade, put in the furnace and fused. This is repeated until it has been built up to the required height and contour.

The platinum foil is then peeled off the cervical end of the finished crown and the post is grasped in a pair of flat-nosed pliers and pulled forcibly out of the crown. The bit of platinum foil, which has been wrapped around the post, remaining in the crown, is removed with a small round bur rotated in the engine. The posthole and the cervical floor are now etched with hydrofluoric acid. The post is roughened by rolling it on a table under a file and it is then cemented into the crown and the root in one operation. The result is a perfectly fitting crown.

Tipping Broken Corners.

For a still longer time I have employed a similar method for replacing broken tips and corners in devitalized teeth, as follows:

The cavity is prepared and a short hole is drilled into the root canal. A matrix is made, and through the matrix an iridio-platinum post, covered with platinum foil as above described, is thrust into the root canal and cemented to the matrix with wax. By taking hold of the free end of the post with a pair of foil carriers the post with the adhering matrix is easily withdrawn from the cavity. This is invested and the porcelain tip is built around the projecting end of the post. When finished the matrix is peeled off, the post withdrawn etched with hydrofluoric acid and cemented into place.

The great advantage of this form of inlay over one with a solidly baked-in post is that it is stronger.

We all know that the weakest point in an artificial tooth is at the pins: In this respect inlays do not differ materially from artificial teeth, and as a matter of fact they are more liable to fracture, as the porcelain used for inlay work is not so strong as that used for teeth. Even if ground up artificial teeth are used the inlay will not be as strong, because artificial teeth are molded under pressure and baked by men who do nothing day after day but bake porcelain; whereas inlays are made by men who only occasionally bake porcelain and therefore frequently overbake or underbake the mass.

Knowing this to be true, I deem it extremely ill-advised to bake any form of post, pin or dowel into an inlay, unless the same is *absolutely*

necessary, and I can say that in the past six years I have never run across a case in which it was necessary.

This being the case, I will give you the method I employ for replacing tips and corners when the pulp in the tooth is healthy and alive.

Tipping Vital Teeth.

I recently had the pleasure of seeing one which I had made six years ago, which not only was in perfect condition, but in the entire time had never come out once.

The cavity is first cleared of all decay, shaped and prepared. At both extremes of the cavity a small hole is drilled into the tooth large enough to accommodate a piece of No. 24 gauge iridio-platinum wire. This is bent in the form of a loop, so that each end will fit into the hole drilled into the tooth. The ends of this loop are now roughened and cemented into the holes of the cavity with oxy-phosphate cement. The cement is carried over the entire loop covering it effectually, the sides being made parallel, or better still, brought to a slight taper. A matrix is made over this entire cement mass either by burnishing or by the impression method (preferably the latter). In this matrix an inlay is built, and when finished the matrix is peeled off and the interior of the inlay roughened with hydrofluoric acid.

With a bur we now remove all the cement around the loop in the tooth, except at the ends where it is fastened. The inlay is now ready to cement into place.

Method of Drilling Porcelain.

In shallow inlays I give additional anchorage by undercutting the cavity in the porcelain, with carborin (a preparation composed of finely ground carborundum moistened with glycerin). The instruments for undercutting are made from worn-out inverted cone burs, put into the handpiece of the engine, and while revolving are held against a stone until all the blades are ground off. I keep these in various sizes in stock, and by revolving these in the inlay cavity filled with carborin an undercut is quickly effected.

Matching Teeth with Porcelain.

Before closing my paper I will touch upon one more topic, and that is an accurate means of matching teeth with porcelain. The method is not original, but it is very good, and I can thoroughly endorse it, having tried it for some time past.

Whenever you mix up any porcelain colors always weigh out the ingredients on a scale, and jot it down on a note book kept for that purpose. Bake a sample button, or better still, a small piece with a hole in, which is more easily mounted and preserved. Give each button a number which corresponds with the number in your note book. In

making an inlay it is only necessary to select a suitable shade from your home-made shade-guide, refer to the number in your book, and weigh out the ingredients. Provided you bake at the same temperature, you will always get uniform results.

This method may at first be somewhat irksome, but when you have gotten together a goodly collection, your saving in time will be incalculable.

Report of Committee on Chemistry and Therapeutics. Alabama Dental Association.

By Dr. Wm. A. Lovett, Brenton, Ala.

In making my report as chairman of the Committee on Chemistry and Thereapeutics, I desire to say that the work of the committee has been very much handicapped by a lack of co-operation among its membership. I am not criticizing anyone, for I appreciate the fact that attention to our practices to the exclusion of all other things prevents many of us from doing associational work, even though it has our hearty sympathy and indorsement. The fact that our association has no available funds with which to defray the expense of practitioners from a distance, prevented us from securing one of the most eminent men in the profession for an illustrated lecture on the "X-Ray in Dental Therapeusis and Practice." We feel, however, that we are fortunate in securing the consent of Dr. James S. McLester, a specialist on internal medicine and diagnosis, to read a paper on "Diseases of Metabolism as Manifested in the Oral Cavity" at this meeting.

My report is a résumé of the different papers that have been presented to the profession during the past year on subjects that come within the scope of the work of this committee, and of the various therapeutical agencies that have been recommended for specific purposes. I have no doubt that most, if not all of you, have seen the journal prints containing these recommendations, and my only excuse for again bringing them to your attention is that having tabulated the remedies under the heads of disease conditions for which they are advocated, they are better arranged for ready reference than if scattered through a host of dental journals.

It is the opinion of your chairman that a Committee on Scientific Research should be organized, with power to conduct investigations as they may deem expedient, and to place at their disposal sufficient funds to defray expenses of stationery, postage, etc., that the work may be

carried on to advantage. I should be glad to see such a committee furnished with a complete chemical and physical laboratory, or at least such apparati and chemicals as may be essential to the thorough investigation of any subject they may deem advantageous to critically examine. Such a committee exists in the Dental Society of the State of New York, and their report in the October, 1906, *Cosmos* shows that they are accomplishing results in research work that could not be otherwise attained.

While dental surgery has been divided into specialties, I am glad to see that the importance of medical agencies for the relief of pathological oral conditions, both by topical and systemic administration, has not been overlooked, but on the other hand the thinking men of the profession are turning their attention to this kind of treatment and are becoming better acquainted with the relationship existing between functional disturbances of the human body and the teeth and oral secretions. The time has come when we must know that in abnormal conditions of the teeth, gums and saliva there is manifested faulty metabolism, and it is our duty to know how to locate the trouble and treat it correctly, or refer the patient to the family physician. Oftentimes we may detect grave functional disturbance in its incipiency, long before manifestation becomes such as to cause our patients to seek the advice and services of their physician. Our patients, therefore, have the right to expect and demand of us that thoroughness of knowledge and preparation that will make us competent to protect them against dangerous delays in the rectification of pathological metabolic conditions. The progress that has been made along these lines is evinced by the numerous able papers that have appeared in our journals during the past year.

Pharmaceutical Nomenclature.

I have noticed in many instances in our dental literature, that writers very frequently use incorrect names of drugs and medicines. We should remember that there are but two standards in this country on whose authority we may implicitly rely for correct pharmaceutical nomenclature, and these are the *United States Pharmacopoeia* and the *National Dispensatory*. All other works on pharmacy and materia medica depend on these products of specially appointed committees of the leading chemists and pharmacists of our country for the correct names of drugs and chemicals. These errors are often so misleading that we are totally at a loss to know just what remedy is intended and your druggist is liable to either question your sanity or ability should you attempt to procure an improperly named preparation. I know of no better way of convincing your druggist of your ability than by correctly written and efficient prescriptions. Many graduates of medical colleges are woefully deficient in this important part of their work, but this is no excuse for the dental sur-

geon to be likewise ignorant. Never write what is known as a "shot gun" prescription, that is, one that has a number of remedies directed to be mixed together, with the hope that some one of them may accomplish your desires. First know what you have to treat, and then prescribe the simplest and best remedy. Never, under any circumstances, guess at doses, always avoid incompatibles. I would also warn you to be cautious in accepting new remedies, and especially new anesthetics.

Digest of Current Literature.

Of the large number of papers that have been published during the current year, I would call your attention to the following, and if, for any reason, some of you have not read them, I would commend same to your thoughtful and careful attention.

"The Downfall of Therapeutics," pp. 729; "Anesthetics," pp. 759; "Tonsils as Lodging Place for Germs," pp. 728, July, 1906, *Dentist's Magazine.*

"Adrenalin and Cocaine in Crown and Bridge Work," pp. 895, and "Thorough Mastication in Treatment of Chronic Diseases," pp. 893, August, 1906, *Digest.*

"Dental Caries Causing Functional and Organic Diseases," by Percival E. Loder, pp. 594, June, 1906, *Digest.*

"Some Pathological Changes in Alveolar Abscesses and Their Treatment," by George W. Cook, January, 1906, *Digest,* pp. 72.

"The Use of the Blue Light in the Reduction of Swelling and the Alleviation of Pains, by J. C. Watkins, January, 1906, *Digest,* pp. 78.

"Treatment of Putrescent Teeth and Permanent Root Filling," by N. N. Wycoff, January, 1906, *Digest,* pp. 87.

"Treatment of Suppurative Affections of the Face and Neck Emanating from the Mouth," by M. I. Schamberg, January, 1906, *Digest,* pp. 29.

"Medical Phases of Dental Disorders," by Samuel A. Hopkins, September, 1906, *Digest.*

"Are We Right or Wrong in the Treatment of Putrescent Pulps," by E. M. Kettig, September, 1906, *Digest.*

"Dental Therapeutics," a series of articles by Dr. Geo. W. Cook, in *American Dental Journal* for 1906.

"The Relation of Systemic Diseases to the Condition of the Oral Cavity," by J. E. Power, October, 1906, *Digest.*

"Syphilitic Lesions of the Oral Cavity, with Treatment Defined," by J. A. Pelkey, *Digest,* October, 1906.

"Local Anesthesia and Anesthetics as Employed in Dental Extractions, Rhinological and Minor Operations," by D. L. Smith and J. T. Hughes, reprint in October, 1906, *Digest.*

"Ludwig's Angina," by Chas. A. Cuthbert, reprint in *Digest,* October, 1906.

"The United States Pharmacopœia," by J. P. Buckley, reprint in *Digest,* October, 1906.

"Report of Two Cases of Infantile Scurvy, with Treatment," by Alice M. Steeves, pp. 1160, November, 1906, *Digest.*

"The Relation of Dental Conditions to Pulmonary Tuberculosis," by F. L. Dodd, reprint in *Digest,* December, 1906, pp. 1312.

"Etiology and Treatment of Chronic and Acute Empyema of the Antrum of Highmore," by Herman Stalte, M.D., *Cosmos,* January, 1906.

"Therapeutics of Pyorrhea Alveolaris," by Dr. Elgin MaWhinney, January, 1907, *Digest,* pp. 73.

"The Treatment of Sensitive Dentin, with Special Reference to the Production of Anesthesia by Pressure," by W. D. Miller, *Digest,* January, 1907.

"The Pathology of Pyorrhea Alveolaris and its Causation, with suggestions for Treatment," by W. F. A. Shultz, *Digest,* January, 1906.

Series of papers on "Therapeusis and Treatment of Interstitial Gingivitis Due to Auto-intoxication," by Dr. Eugene Talbot in *Digest,* 1906.

I would especially call your attention to a series of articles on "Echinacea purpura, Echinacea augustifolia, Eschafolta," beginning in the November, 1906, *Dental Review,* by Dr. A. C. Hewitt. Some very remarkable therapeutic values are claimed for this preparation, which is prepared by Lloyd Bros., of Cincinnati, and every dentist should investigate the claims made for it.

I would also direct your special attention to a paper in the March, 1906, *Digest* on "Drugs and Their Combinations," by Dr. J. P. Buckley.

I now come to that portion of my report in which I have arranged alphabetically pathological conditions for which special therapeutical agencies and operative treatment have been suggested. I have omitted in many instances the names of the journals from which these suggestions were taken, for the purpose of saving time and space.

Abscesses.

Guaiacol Carbonate.

In cases of sinous abscesses, in which there is only a sinous without much tissue degeneration around the apical end of the root, Dr. Geo. W. Cook states that he has had considerable satisfaction from the use of guaiacol carbonate, a combination of guaiacol and phenol. This agent, he says, has sufficient antiseptic power to destroy the form of bacteria that usually enters into such processes, is but little escharotic

and a mild stimulant to the tissue cells. It is a mild disinfectant, and is also valuable in the treatment of certain autrum troubles.

In abscesses having no sinous, the use of this preparation is contra-indicated, as it might prove slightly irritating, because it has been observed that when this agent is confined to the root of a tooth, at body temperature, it sometimes becomes sufficiently volatile to penetrate the tissues and establish a condition that we wish to avoid, namely, acute inflammation.

Chinosol.

In the so-called blind abscesses in which there is but little destructive tissue change at the dental apex, and in which possible discoloration of the teeth is of no special consequence, he uses a ten or fifteen per cent. solution of chinosol. If the discoloration of tooth structure is to be avoided, it should not be used. Chinosol is distinctly valuable as a germicide when brought in contact with such bacteria as are usually found in chronic alveolar abscesses, in which there is a slight but continuous degeneration of the tissue.

Chinosol may also be said to be beneficial in cases of antrum trouble having but little pus formation. When introduced into large pus cavities, it is rapidly neutralized by the pus, and better results may be obtained from the use of guaiacol carbonate. (See article by Dr. Cook, June, 1906, *Digest,* pp. 573.)

He also recommends the use of thymol dissolved in oil of eucalyptus in mild forms of chronic blind abscess.

Local Anesthetics.

Before injecting cocain, Dr. L. W. Jordon paints the gum with campho-phenique, full strength, to prevent forcing septic matter into the tissues with the needle. The campho-phenique by benumbing the gums aids in the anesthesia. The writer uses alcohol, either alone or combined with menthol, or equal parts by weight of chloretone and sulfuric ether for the same purpose, and with satisfactory results.

Dr. S. T. Adamson gives the following formula for a local anesthetic:

℞ Acoin .....gr. viii
Sodium chlorid .....gr. xii
Morphin sulfate .....gr. ss
Phenol .....gr. iii
Glycerin .....m. iii
Aqua Menth. Pip., q. s.....oz. i
M.

For full information concerning its use and character of preparation see reprint in *Digest,* October, 1906, pp. 1128.

During the past year I have obtained the most satisfactory results by using the following formula:

℞ Cocain hydrochlorid ..... gr. iv.
Morphin sulfate ..... gr. i
Phenol ..... gtt. ii
Aqua Menth. Pip. q. s. ..... oz. i
M.

I believe the formula originated with Dr. Cook, in the main, with the exception of the proportion of cocain used, which I reduced from six grains to four, and the addition of the morphin, which counteracts the systemic effect of cocain. I have never had any pain or sloughing following its injection, and in the majority of cases have been enabled to reduce the pain of extraction to the minimum.

The following comparatively new agents, that have become official and which possess distinct anesthetic properties, are mentioned in the works of authorities on materia medica and therapeutics, and are worthy of close investigation:

Tropa-cocain. An alkaloid isolated from the narrow-leaved coca plant of Java by Geisel. Its action is similar to that of cocain, being one-half as toxic as this drug, and does not cause ischaemia or congestion of the mucous membrane with which it is brought in contact. According to Neugebauer, 0.05 to 0.26 gram of this alkaloid may be injected for the production of spinal anesthesia. (*Wood's Therapeutics,* pp. 118.)

Anesthesin. The ethyl-ester of P-amido-benzoic acid, whose hydrochlorid makes a one per cent. solution, is a very active and practically non-poisonous local anesthetic. It is very irritating, however, and when introduced hypodermically should be diluted to avoid the burning sensation which it would otherwise produce.

For *surgical anesthesia* Dunbar recommends the following formula:

℞ Anesthesin hydrochlorid 0.25
Sodium chlorid 0.15
Morphin hydrochlorid ..... 0.005 to 0.015
Water 100

The solution can be sterlilized. Internally, anesthesin may be employed in doses of from 5 to 7 grains in gastrodynia and in vomiting. (*Wood's Therapeutics,* pp. 118.)

Subcutin. A compound of anesthesin and paraphenolsulfuric acid. It is said to be germicidal and nontoxic, and in a one per cent. solution especially useful for the production of infiltration anesthesia. One per cent. of sodium chlorid should be added to the solution in order to make it permanent in the cellular tissue. (*Wood's Therapeutics,* pp. 119.)

Nirvanin. Another substance introduced into practical medicine is readily soluble in water, and is a pronounced local anesthetic, but according to reports is not equal in activity to cocain. It is much less poisonous than cocain, and a two per cent. solution is very effective and may be freely used for infiltration anesthesia. The maximum quantity that may be used is given as eight grains. (*Wood's Therapeutics,* pp. 119.)

Novocain. Is a new local anesthetic brought to the attention of the profession by its discoverers, Unfelder and Einborn. My advice is that you let the other fellow prove that it has a place in dental practice. It has been shown that intravenous injections of solutions of this preparation decrease arterial pressure, and it is claimed by some that this action is due to its influence on the vasomotor centers, while it is the opinion of Pinet and Jeay that "nothing has been done to disprove that the decrease in blood pressure is due to the effect of the agent on the endocardium as was shown by Vulpian to be the case with cocain." This preparation is not official in the United States at this time.

Just here allow me to direct your attention to a reprint in the *Cosmos,* August, 1906, pp. 882, entitled "Disorders and Diseases of the Heart in Relation to Anesthesia for Dental Operations," written by H. Bellamy Gardner, of London.

General Anesthetics.

Narcotile. Dr. W. H. Reubin says, "The beauty about narcotile anesthesia is its pleasantness. Patients are insensible to pain long before they are past talking. I can go ahead and operate, the patient being almost entirely conscious, but feeling slight or no pain. I have given narcotile and removed temporary abscessed teeth for almost babies, who would find no objection save that 'that stuff made their ears roar.' The patient always recovers completely in about five minutes, and there are no after effects."

I find no reference to this preparation in the works of the latest authorities that I have examined.

Magnesium Sulfate.

Dr. J. S. Meltzer, of New York, has discovered that complete anesthesia may be induced by injections of sixteen minims of a twenty-five per cent. solution of chemically pure magnesium sulfate for each twenty pounds of body weight of the patient. Before its injection an equal amount of cerebro-spinal fluid is removed by lumbar puncture. The anesthetic effect is quite prolonged, sensation and motion not returning for from eight to fourteen hours after administering the drug. No deleterious effects on the heart have so far been noticed, even in a case of an overdose, the pulse rate varying from seventy to eighty during the entire time, while the respiration fell to ten per minute.

As a local anesthetic it does not seem to possess any appreciable advantage, unless applied directly to a nerve trunk, when, according to a quotation from Dr. Meltzer by the editor of the *Brief,* it abolishes conductivity, "in this respect acting like the local application of cocain."

Ethyl Chlorid.

Dr. Henry states that ethyl chlorid gives perfect anesthesia in man and in animals; that "its action is rapid, the excitement slight: there is no reaction, and the return to consciousness instantaneous." Care is necessary to continue the anesthetic until the operation is over, and as very little air should be inspired a good apparatus is needed. It is to be preferred in minor operations, since it is not followed by nausea or vomiting. It does not irritate the larynx, but may produce renal, hepatic and cardiac lesions. It may be given first, followed by ether or chloroform, with good results. (*Dental Digest,* pp. 108, January, 1906.)

Wood does not agree altogether with the statements credited to Dr. Girard. He considers this drug unfit for use as a general anesthetic. (*Wood's Therapeutics,* pp. 100.) Cases have been reported of unhappy results from inhalation of ethyl chlorid while being used for spraying the gums in process of "freezing" them prior to operating.

Somnoform.

Regarding this preparation, permit me to quote what Wood says regarding same: "Somnoform is a proprietary anesthetic, said to contain ethyl chlorid 65 per cent., methyl chlorid 30 per cent., ethyl bromide 5 per cent. Such a mixture must always be to the practitioner a mystery, and can not be recommended." (*Wood's Therapeutics,* pp. 103.)

If you will carefully study the physiological action of the drugs which somnoform is said to contain, I believe you will have reason to doubt the safety of the mixture as an anesthetic.

Speaking on this subject, Dr. Chas. Teter, in November, 1906, *Dental Summary,* page 811, says: "Anyone using an unknown or new agent for this purpose does so on his own responsibility."

What I have said concerning general anesthetics applies with equal force to local anesthetics, and the use of preparations for hypodermic injections placed on the market under trade names, and without the exact formulæ, with quantities of the drugs contained therein printed on the label, can not be too strongly condemned. In fact, I believe a man who uses a secret nostrum for the purpose of inducing local anesthesia, the formula of which is only known to its dispensers, ought to be liable to prosecution for malpractice, by reason of the fact that he may or may not be introducing into the systems of his patients dangerous drugs contained in a solution, the character of which he knows absolutely nothing further than the statements of those who market it. The fact that it is highly recommended should not be sufficient reason for some one else to exhibit it in his practice, so long as its exact formula remains a secret.

I have had samples sent me that actually turned green in color within two or three weeks' time. Some years ago I used these secret preparations, but I never expect to do so again. I am sure that we all agree with Dr. Buckley when he says that should an accident occur, and one may occur at any time, it would be much better to have the prescription for the preparation you are using on file with your druggist than to be compelled to admit that you were using Dr. Smith's Wonderful Pain Killer, the ingredients of which are unknown to you. Aside from its safety, why pay from seventy-five cents to one dollar per ounce for a preparation that you can get from your druggist for from ten to twenty-five cents per ounce? My druggist only charges me ten cents per ounce for the local anesthetic, the formula of which is given above, and you can, therefore, afford to throw away such portion of it as may become old, and replace it regularly with a freshly prepared article.

Antiseptics, Deodorants, Disinfectants and Germicides.

Tr. Lavender Compound, U.S.P.

One pound of this preparation diluted in one gallon of water is, according to Dr. H. E. Davis, a valuable disinfectant for use in cuspidores. He states that a few drops of the diluted solution placed in your cuspidores will have a very pleasant effect on your patients. Its cost is sixty cents per pound.

Terebene.

Some one recommends this antiseptic for use in a cavity in front of bur in opening up putrescent canals, and states that the usual disagreeable odor is changed to one as pleasant as attar of roses.

ITEMS OF INTEREST

Oil of Turpentine.

Perhaps the same results may be obtained by carrying out the suggestion of Dr. J. E. McDonald, in *Dominion Dental Journal*. He says: "On opening up a pulp chamber in which there is a putrescent pulp giving out a most offensive odor, dip your broach in oil of turpentine and insert in canal; the odor will change almost instantly, most agreeably to yourself and patient."

Sulfurous Acid.

Sulfurous acid is said by Dr. J. Kennerly to be an absolute deodorant and disinfectant for a denture, and does not merely refer to plates that have been worn, but a few drops placed in the water in which your case is to be left over night, will make the cleansing with brush, soap and water pleasanter.

Tonquin.

A tonquin bean placed in a small bottle of iodoform is said to obviate the unpleasantness of this drug very much.

Iodin.

Regarding this drug as a germicide, the *St. Louis Medical Review* says that "in a solution of iodin varying from 0.2 to 1 per cent. we have a very potent germicidal agent, far superior to mercury bichlorid—the acknowledged leader of all other antiseptics. It approaches nearly to the ideal antiseptic, in that (a) it is easily prepared and is stable; (b) is non-toxic and non-irritating, in the strength effective, being only one-fourth as toxic as mercury bichlorid; (c) it does not coagulate albumen, nor form inert compounds with tissues; (d) it is effective in a very brief time; (e) the stain it produces soon disappears; (f) last and most important, it posesses a remarkable penetrating power. A 0.5 per cent. solution is amply strong for all practical purposes.

Iodoform Solution.

The *Lancet* mentions a formula published by M. Blanche "for the preparation of iodoform in a liquid state, which from a therapeutical point of view offers some certain advantages over an emulsion of iodoform. It is a syrupy, yellowish liquid, having an odor of iodoform, and is miscible with water, alcohol, ether, glycerin, chloroform, essential oils, benzol, eucalyptol and creasote. It dissolves guaiacol and several other drugs, and is easily absorbed through the skin, iodin having been found in the urine six hours after the application of the liquid. It is easily prepared by dissolving 35 parts of caustic potash in 25 parts of water, adding first 50 parts of oleic acid and 30 parts of 95 per cent. alcohol, and then 30 parts of iodin in small portions. On warming the mixture iodin is absorbed, and a brownish liquid is obtained. If neces-

sary the brown tint may be removed by the addition of a few drops of caustic potash. After a few days the liquid is decanted and kept in a dark place."'

Antiseptic and Detergent Solution.

Dr. Myers, in *Cosmos,* gives the following formula for an antiseptic and detergent solution, useful in treatment of pyorrhea pockets by atomizer, and, I might add, it would be an excellent preparation to use in spraying the patient's mouth prior to examinations or operations:

℞ Campho-phenique ..... dr. i
Dioxogen ..... oz. i
Glyco-thymolin ..... oz. iii
Aqua q. s. ad. ..... oz. vi
M.

Sodium Aurate.

Sodium aurate is mentioned by J. H. Verhoeff in *Journal American Medical Association* as being a non-irritating local antiseptic of remarkable power, and having effective germicidal power and non-toxic. He prepares it by taking 1 gram of gold chlorid and cautiously adding sufficient of a 5 per cent. aqueous solution of sodium hydrate to produce a faint alkaline reaction. When the solution becomes lighter in color and more turbid, add 100 c. c. of a 1 per cent. solution of boric acid and shake the mixture. The turbidity disappears and the fluid becomes darker. Normal salt solution is added to make to the total 200 c. c. Filter this and keep in a glass stoppered bottle. By evaporating this to dryness, the antiseptic powder may be formed, and from this one may also make an ointment. Its bactericidal properties are dependent on the gold present. It must be completely neutralized to render it useful as an antiseptic. It is of great value in gonorrheal ophthalmia. The bacteria killed are found colored with metallic gold.

Chloral Hydrate.

Chloral hydrate is distinctly germicidal and antiseptic, animal tissues being preserved by it almost indefinitely without interfering with their microscopical structure, a solution of from 20 to 40 grains to the ounce being employed. It is first irritant and afterward sedative.

Chloretone.

Chloretone is locally a sensory nerve paralyzant, and in 10 per cent. solutions distinctly antiseptic.

Ichthargan.

Ichthargan, a compound of silver and ichthyol, aside from its powerful germicidal and antiphlogistic properties, has distinct local anesthetic properties.

Thymol.

Thymol in ¼ per cent. solution in alcohol is equivalent in germicidal properties to a 1¼ per cent. solution of phenol against the coccus of mouth septicemia.

Hemorrhage After Tooth Extraction.

Carbolized Resin and Alum.

Carbolized resin and alum has been recommended by Dr. J. W. Taylor, with the claim that it never fails to produce satisfactory results.

Gutta Percha.

Some suggest softening gutta percha and pressing it into alveolar socket, using a considerable excess. Have the patient bite into it to occlusion, pressing excess against the lingual and buccal walls. Cool, take out, trim and replace as a plug.

Alcohol and Chloroform.

Dr. Goslee believes that no effort should be made to control hemorrhage from root canals by any of the hemostatic agencies, but that blood should be dissolved out with alcohol or chloroform, and evacuated by means of tepid water or shreds of cotton, thereby conserving the color of the tooth.

Potassium Permanganate.

Schodel claims valuable hemostatic properties for permanganate of potash, employed in the form of a paste, made by mixing it with 4 per cent. of vaselin. The parts to which it is to be applied should first be thoroughly dried. It is especially valuable in epistaxis and hemorrhage from excision of warts and condylomata. Only slight pain accompanies its application. The preparation, when not in use, should be kept in an air-tight dish, as it deteriorates by exposure to the air to some extent. (Reprint in *British Dental Journal.*)

Calcium Chlorid.

In treating local hemorrhages, Grant points out that we should avoid producing additional injuries to the tissues, either by pressure pads or strong astringents, and states that while calcium chlorid is invaluable in hemophilia "it is advisable to intermit the use of this drug, as its constant use is not followed by a constant increase of coagulation."

Perhydrol.

Dr. Boyer asserts that perhydrol is a very reliable hemostatic in hemorrhages from the gums, and after nerve extraction. "One part of the perhydrol to three of water will check even severe bleeding, and the action will persist if the area is touched up repeatedly."

Catarnine Hydrochlorid.—Stypticin.

This preparation is valuable both as an internal and local hemostatic. Catarnine gauze or absorbent cotton saturated with catarnine has been greatly praised by dentists and general surgeons.

The following hemostatic mixture is recommended by the *Pharmaceutical Zetung* (from reprint in *Cosmos*):

℞ Sulfo-phenic acid } .....aa oz. iss
Rectified alcohol .. }
Benzoic acid .....dr. i
Tannic acid .....dr. i
Glycerin .....oz. iss
Rose-water .....q. s. ad. oz. vii
M.

The sulfo-phenic acid is prepared by mixing one part of sulfuric acid with one-half part of phenol for several minutes in a *bain-marie* or water bath. The benzoic acid is dissolved in a portion of the alcohol, and the glycerin and the tannic acid in the remainder of the alcohol. The mixture is clear, of a straw color, acid in taste, caustic but not irritating, and coagulates albumen.

Neuralgia.

According to the *Journal of the American Medical Association* Oswalt injects 1 to 1.5 c. c. of 80 per cent. alcohol, to which .01 gram of cocain or stovain has been added, making the injection along the trunk of each of the branches affected with neuralgia, at the points where they emerge from the bone. He states that he has never had the slightest mishap or unpleasant by-effect. The pain is usually arrested at once, and in at least 90 per cent. of the cases treated the neuralgia was cured by this procedure.

Warburg's Tincture.

Dr. J. E. Powers recommends this preparation in two dram doses as being superior to quinine in cases of neuralgia from malarial origin. Personally I prefer Vinotone, a preparation identical with Warburg's tincture, except that it has the addition of aromatics, which makes it pleasanter to the taste. The dose is one tablespoonful four times daily.

Thymacetin.

Is a valuable analgesic in neurotic pains, and may be administered in from 5 to 15 grain doses in capsules.

Menthol. Rubbed on a part sometimes relieves superficial neuralgic pains.

Odontalgia.

For this trouble the following prescription has been recommended:

℞ Chloral hydrate .....gr. lxxv
Cocain hydrochlorid .....gr. xv
Camphor .....gr. lxxv
Alcohol .....m. x
M. Sig. Apply to the cavity on a tampon of cotton.

Acetanilid. Dr. J. A. Burnett, in *Medical Brief*, says: "A small quantity of acetanilid placed in the cavity of an aching tooth will quickly relieve it. Guaiacol is superior to acetanilid, and should always be used in preference to it when on hand. Coffee is a good antidote for acetanilid. This should be mentioned to patients when prescribing it, as it may prevent much harm and save life.

Calcium Phosphate. The *Medical Progress* recommends that odontalgia due to pregnancy or debility be treated with maximum doses of calcium hypophosphate.

Pulp Capping.

Beta-Naphthol. Dr. A. W. McCall, in *Federal Dental Journal*, says: "I have from time to time noticed, in the cleaning out of a cavity preparatory to filling, that we come across, over the pulp-chamber, a layer of softened dentin, which if removed would necessitate the treatment, and probably the removal, of the pulp. I find that by using in equal quantities hydronapthol and cement (in the ordinary way of mixing cement for a filling), and placing a capping of the same over the layer of dentin, then allowing it to become set, and proceeding with my filling in the usual manner, my patient has no further trouble. The hydronapthol preserves the teeth by arresting the action of putrefactive germs. The same applies in the case of a deciduous tooth, very little or no cleaning of the cavity being necessary: simply cap the cavity with hydronapthol and cement and place your filling on the capping to obtain the necessary firmness. This applies also in the case of a hurried filling where the patient can not spare time for proper treatment. Again, when I find it necessary to extract the pulp,

and the patient has probably to leave the same day, after dressing and cleaning out the canal as well as possible in my limited time, I have filled the canal with a mixture of hydronapthol and cement, and have proceeded with the filling. In no instance has there been any further trouble."

Beta-napthol is the proper name for the remedy which Dr. McCall terms hydronapthol. I have lately tried his method in several cases of nearly exposed pulps, and up to this time the results have been satisfactory.

Pain Following Pulp Capping.

Aconite and Chloroform.

Dr. Louis Jack advises that in cases of pain following pulp capping, which is sometimes reflected to the ear, with a decided reaction to cold applications, after drying the gum tissues and wiping away adhering mucus, we may apply on a pledget of cotton, for from fifteen to twenty seconds, a lotion made of two parts of aconite and one part of chloroform. "The action of the chloroform is to accelerate the absorption of the aconite, which depresses the sensory nerves and equalizes the blood pressure at the apical region. The chloroform also acts as a counter-irritant."

Another writer recommends equal parts of aconite, iodin and chloroform for pericementitis. In my hands this latter preparation has not proved as satisfactory as equal parts of aconite and iodin.

Pain Following Extraction.

Phenol.

"Thoroughly curette the alveolus, thus removing all disorganized tissue, coagulated blood and alveolar debris, if any is present. The alveolus is then copiously irrigated with hot water, and after drying with cotton, an application is made of two drops of phenol, and the alveolus is loosely packed with sterilized gauze. If the pain does not subside, an application should be made of campho-phenique and morphin acetate."—*Digest,* January, 1906, pp. 108.

Pulp Devitalization and Extirpation.

Lampblack.

Garrett Newkirk advocates following Dr. G. V. Black's suggestion to mix your arsenical preparations with a little lamp black in order to detect any movement it may make tending to crawl out of cavity. He uses a preparation of arsenic, morphin and cocain, mixed with a sufficient quantity of lamp black to make a dull black color.

Adrenalin.

The *Dentist's Magazine* calls attention to a suggestion that has been made, to incorporate in nerve devitalizing pastes adrenalin, in order to control the tendency to swelling of the pulp, which causes the pain usually experienced from arsenical applications. I have been very much gratified at results obtained by carrying out this suggestion in a few cases.

Trichloracetic Acid.

Dr. A. Eubank, in *Dental Headlight,* says: "Dissolve cocain crystals with adrenalin and there will be no hemorrhage. Wrap a few fibers of cotton on a broach and dip in trichloracetic acid and insert to the bottom of canal, cauterizing the ends of nerve fibers. The canal is then ready for immediate filling."

In my own practice, I have noticed in pressure anesthesia where I used cocain and adrenalin, that after extirpating the pulp, and reaction takes place from the styptic effects of the adrenalin, I always have profuse hemorrhage, but I have never cauterized the ends of nerve fibers, preferring to get rid of the possible coagulated blood by mechanical means, such as has already been suggested in this report. Dr. Eubank does not tell us what per cent. solution of trichloracetic acid he uses, but I presume he means a saturated solution.

Pyorrhea Alveolaris (So-called).

Sodium Chlorid.

Dr. E. H. Allen recommends the use of sodium chlorid worked down into the pockets several times a day, and on the tooth brush. He claims that the gums will become solid and healthy and the recession stopped. Others have reported excellent results from its use. My own patients often enter a protest against its disagreeableness, but I believe it is efficacious when the treatment is properly and faithfully carried out by the patient.

Nitrate of Silver.

In cases of extreme sensitiveness at the necks of teeth following removal of calcarious deposits, the application of a saturated solution of silver nitrate will afford relief. The soft tissues should be protected by napkin or cotton rolls. Should any of the solution accidentally come in contact with the soft tissues, its action may be promptly arrested by the application of sodium chlorid.

Iodin to Soften Calculus.

A few applications of iodin to salivary and serumal calculus, according to Dr. E. M. S. Fernandez, tends to disintegrate and facilitate its removal.

Sulfur Fumigation.

Dr. B. J. Cigrand, in *American Dental Journal,* recommends in cases of loosened teeth, after having secured immobility through properly constructed prosthetic appliances, "to fumigate the gingivæ with sulfur as antiseptic treatment, and give the gums a bath with extract of geranium, which constricts the muscular tissue surrounding the teeth, inducing the gums to tightly hug the cervical portions of the dental organs."

Argyrol.

Dr. A. F. James, in *Dental Review,* advocates argyrol as the only drug he finds necessary to use in the treatment of pyorrhea aside from a good mouth wash. "After removal of deposits, syringe the pockets with warm water, and inject freely a twenty per cent. solution of this salt."

This is one of the silver preparations, and is now used extensively as a non-irritating disinfectant and germicide, and prevents soreness following the surgical treatment. It is also said to be a specific for the treatment of gonorrheal ophthalmia.

Lactic Acid.

Dr. J. H. Nicholson injects the pockets with a few drops of pure lactic acid, two or three times a week, until results are obtained, following thorough cleansing and polishing of the teeth. He says that while this treatment is slow in its effects, it is always sure.

Dr. Robert Good floods the pocket with warm C. P. lactic acid after all deposits are removed. He advises then to leave the tooth alone, giving it absolute rest, and claims that in two or three weeks your case will be well.

Phenol-Sulfonic Acid.

"In all cases of deep pockets," says Dr. Elgin MaWhinney, "I simplify the work of previously packing the pocket with gauze saturated in twenty-five per cent. phenol-sulfonic acid—or aromatic sulfuric acid will often do quite well. The packing should be left for twenty-four hours, when the gum will be crowded away from the tooth neck where the pocket is, so as to enable one to see to a great extent exactly what is being done, and to scale the root without much pain or laceration of tissue.

Dr. Eugene S. Talbot has written several interesting articles on the "Therapeusis and Treatment of Interstitial Gingivitis Due to Autointoxication," which appeared in issues of the *Dental Digest* during 1907. Dr. Talbot is a close student and deep thinker, and his observations should demand the attention of the profession generally. While I do not agree with him as to some of the treatment employed, yet in the main I believe he is correct in his conclusions.

Prophylaxis and Hygiene.

Daily Massage of the Gums.

Dr. R. B. Huller says: "One of the wholesome things that may be done mostly, if not entirely, by the patient daily, or should be, is the massage of the gums. This may be done with the fingers pressing hard above the teeth and squeezing and working down to the edge of the gums. A little time spent each day with gum massage will result in those tissues becoming harder and more capable of resisting the incipient deposits, in fact, dislodging some that have got a foothold."

Silver Nitrate.

For the past ten years Dr. H. F. Hamilton has "made it a rule to see that all of the teeth back of the cuspids were given a good treatment with a saturate solution of silver nitrate as soon as possible after eruption. Apply it with a small swab, letting it stay a minute, and pushing it with an explorer down into the sulci. The staining is only superficial and caries is generally prevented, and if it occurs is greatly retarded."

Removing Stains From Teeth.

Iron.

The *Alkaloidal Clinic* states that lemon juice followed by H_2O_2 will remove iron stains from teeth in most cases. In some cases where the enamel has become worn and the substratum has been stained, it is impossible to remove the discoloration, as the bone cells themselves contain a lime and iron salt which is irremovable.

Silver Nitrate.

Stains from this salt may be removed by applications of iodin followed by alcohol.

Sensitive Dentin.

Ethyl Chlorid.

J. M. Gale asserts that "the first application of the bur can be made absolutely painless in the most highly sensitive cavity by simply taking ethyl chlorid on the bur point and bringing it quickly into contact with the tooth.

Dr. Geo. Gow states that very gratifying results may be obtained from the use of ethyl chlorid spray if properly managed. While it is by no means painless in its application, "it is appreciably less so if a blast

of cold air is first directed against the tooth, making the change of temperature less sudden." A pledget of cotton saturated with the liquid should then be brought in contact with the tooth cavity, and then removed, repeating it frequently, until it can be left in the tooth without excessive pain, when the tooth may be sprayed direct. The finer the spray the better.

Perhydrol. This preparation, which is Merck's formula of hydrogen dioxid, is recommended by Virgo Andresen, of Copenhagen, for use in dental hyperesthesia. Dr. Guilford quotes him in the *Stomatologist* as saying that "a few drops of the 30 per cent. perhydrol acts almost instaneously in anesthetizing the dentin. It is to be preferred to silver nitrate, since it bleaches instead of staining. In filing off long teeth much pain can be avoided, but for the pulp itself the drug is entirely too irritating. In cavities that can not be kept dry, it also serves to disinfect, while the cauterization is too short to be painful."

Phenol. Wm. Simms reports the satisfactory use of phenol, zinc chlorid and trichloracetic acid as dentin obtundents, by placing either of the remedies on a pledget of cotton in the dessicated and protected cavity, covering same with unvulcanized rubber and using pressure.

Personally I have never had much success with phenol except in combination with cocain, and even this combination is not always reliable for desensitizing dentin, but is usually efficacious in anesthetizing a partially exposed pulp for opening into its chamber and facilitating its removal.

Trichloracetic Acid. Dr. Geo. Gow also recommends warm saturated solutions of trichloracetic acid, for application to shallow erosion cavities, the cavity being dessicated between applications. He claims real merit for this procedure.

Sodium Dioxid. Through the alkaline and caustic properties of this drug it is said to obtund sensitive dentin. It should only be used for this purpose by making a saturated solution in water, as much heat is generated, accompanied sometimes by ignition, when the dry powder introduced into the cavity comes in contact with moisture in a tooth. (*Brief.*)

Zinc Todid and Todin. Dr. E. M. S. Fernandez, in *Review,* recommends the following preparation and method previous to excavating: Zinc iodid crystals, grs. 1½; iodid crystals, grs. 2. Make a solution of this in glycerin. Wind a small pellet of cotton on the end of a broach, dip in

the solution and apply it to the cavity of decay. For removing the stain use hydrogen peroxid.

Phenol and Sodium Dioxid.

Dr. Henry I. Moore obtains happy results from the following method: Flood the cavity with pure phenol, and wait a minute or so; then put into the cavity a little finely powdered peroxid of sodium without wiping out the acid. This causes some pain. Add a few more grains and commence to excavate. If the rubber dam is not used care must be taken of the gum. In connection with Dr. Moore's suggestion, I would call your attention to the quotation I have just made from the *Brief* regarding sodium dioxid and the danger of ignition when coming in contact with the moisture of the mouth.

Potassium Carbonate.

A saturated solution of this drug in glycerin, according to Dr. L. W. Jackson, is very effective for sensitive dentin. It is non-poisonous, and should be applied to the cavity on cotton and allowed to remain for ten or fifteen minutes.

Phenol and Oil of Cloves.

Some one recommends sealing into the cavity for twenty-four hours equal parts of phenol and oil of cloves, to which has been added twenty grains of cocain to the ounce.

Jarring.

Dr. Lenard advises jarring the tooth with an automatic mallet having a blunt plugger, and states that it aids materially in inducing the penetration of fluids into the dentin.

Pressure Anesthesia.

Dr. Miller has given us the results of his experiments showing the penetrating action of different agencies in connection with pressure anesthesia, and his findings show that sufficient pressure may be brought to bear by the hand, and that the use of high pressure instruments is absolutely unwarranted.

It has not been my pleasure to carry out all of these different suggestions for obtunding hypersensitive dentin, and I believe all of you will agree with me when I say the satisfactory handling of cases of dentin hyperesthesia is one of the most perplexing problems that confronts the dental surgeon. I have, in the past, tried every remedy I ever heard of, or saw printed in our text books and journals, and in some cases you may try one after another until you have exhausted your medical armamentarium, and still the sensitiveness is either just as acute and many times more acute than it was when you started. I am not referring now to our later methods of pressure anesthesia.

I have, however, in several instances had satisfactory results from the use of equal parts by weight of chloretone and ether, and a solution of cocain in ether.

Sensitive Palates.

Chloretone.

Where patients have such hypersensitive palates as to render it impossible to take impressions for dentures, Dr. A. E. Franklin, in *Dental Register*, states that most obstinate cases may be controlled by the administration of chloretone in 5 grain doses as follows: One powder to be taken on rising in the morning, the second two hours from the first, and a third powder after eating a light breakfast. The patient is then to report at your office, and you again administer a 2 grain dose of chloretone, after which you may proceed to take the impression.

Sore Gums and Mouth.

Orthoform.

Dr. H. W. McMillan states that this drug applied to sore places on gums caused by a denture will remove the soreness.

Canker Sore Mouth.

Dr. J. E. Power considers aromatic sulfuric acid, full strength, almost a specific for this trouble, and he at the same time prescribes internally the following:

℞ Tr. ferric chlorid ..... gtt. x
Potassium chlorate ..... gr. iii
Aquae ..... oz. ss
Every three hours in lemonade.

Picric Acid.

Dr. Paran employs picric acid in inflammatory affections of the mouth, and has successfully exhibited it in the "treatment of traumatic glossitis, particularly those occurring through attacks of epilepsy: in exfoliate marginal glossitis, ulcerations of the gingival and buccal mucous membrane: in mercurial stomatitis, so-called, and, indeed, in all inflammations of the mucous membrane of the mouth, particularly those of microbic genesis." His formula for use is:

℞ Saturated aqueous solution of picric acid.....1 part
Distilled water .....2 parts

The solution to be applied upon the ulcerated area twice daily by means of a pledget of cotton. (Reprint in October, 1906, *Digest,* pp. 1126.)

Mucurial Stomatitis.

For tender, bleeding gums from ptyalism, or any other cause, associated with fetid breath, the *Medical News* gives the following prescription:

℞ Formaldehyd (40 per cent. solution).....dr. i
Thymoli .....gr. x
Tincturae benzoini compositae .....dr. ii
Alcohol q. s. ad.....oz. iii
M. Sig. Teaspoonful in wineglass of water as a mouth wash every two or three hours.

A 40 per cent. solution of formaldehyd is known as formalin.

Fetid Mouth.

℞ Saccharin, Sodium bicarbonate } .....aa gr. xv
Salicylic acid .....gr. xxx
Alcohol .....oz. iiiss
M. Sig. A few drops in a glass of water to be used as a gargle. (From *American Medicine.*)

As antiseptic and disinfectant mouth washes the following formulæ will prove valuable.

℞ Resorcin .....gr. xx
Alcohol, Glycerin } .....aa dr. i
Carmine granules .....No. vii
Aquae q. s. ad. .....oz. viii
M.

℞ Benzoic acid ..... gr. xii
Salicylic acid ..... gr. x
Thymol ..... gr. ii
Glycerin .... } aa oz. i
Honey of rose } .....
Carmine granules ..... No. vii
Aquae q. s. ad. ..... oz. viii
M. Sig. Dilute with water and use as a mouth wash.

The Saliva.

The Committee on Scientific Research of the Dental Society of the State of New York made a most interesting report (see *Cosmos,* October, 1906, pp. 1029), covering their investigations on this subject. Dr. Samuel Doskow also contributed an able article in the *Digest* for January, 1906, pp. 41.

The study of the saliva is receiving more attention than it has perhaps been given at any time in the past, and if the investigations along the lines already begun continue, we may expect many mysteries cleared up that will no doubt enable us to treat systemically some of the effects of faulty metabolism that have heretofore been treated surgically, and then, too, with only a moderate degree of success.

The *Lancet* says: "Dr. C. Risa has been able to confirm the views of other investigators to the effect that there is a distinct relationship between dental caries and the alkalinity of the saliva, and that a high alkaline reaction constitutes the best means of combating the development and progress of caries. From experiments on the means of modifying the saliva, he finds that a diet consisting of food stuffs rich in calcium salts increases the alkalinity and quantity of the saliva, and he believes that such a diet influences in a marked way the quality of the teeth.

In my paper last year I said that I did not believe that dentists, as a rule, pay as much attention to the condition of the saliva of our patients as we should, and I am still of the opinion that until we do learn to analyze the saliva, and learn what to administer to produce certain changes in this fluid, we shall continue to see the ravages of decay in the mouths of our patients, and the beautiful fillings we insert return to us with recurrences of this trouble.

Atropine Sulfate.

When your patients have an excessive flow of saliva administer a 1-150 gr. tablet of atropine sulfate three-quarters of an hour before operating. The patient's mouth will not become excessively dry, but the flow will be considerably checked, and the effect of the drug will continue four or five hours.

Special Preparations.

Mercuric Tannate. Dr. W. J. Robinson says this drug is one of the least irritating compounds of mercury, and is especially valuable where the stomach can not endure any other form of mercury. One-sixth or one-half grain pills or granules may be given from three to six times daily.

Beta-eucain Lactate. This preparation is considerably more soluble in water than beta-eucain, and is said to possess all the properties of the hydrochlorid.

Lead Wash, Mucilagenous. E. S. McKee recommends a mucilagenous lead wash as a substitute for the official lead and opium wash that has been justly popular for a long time. He states that the efficiency of the preparation is due to the astringency of the lead, and that the local application of the opium alkaloids are superfluous since they are not absorbed by the skin. His formula is:

℞ Liq. plumbi subacetatis ..... gr. lxx
Mucil. accaciae ..... gr. xiv
Aquae q. s. ad ..... oz. iii
M.

The manner of preparation is as follows: The solution of lead subacetate is diluted with 55 c. c. of water, and the mucilage with 27 c. c. The two are then mixed. Alcohol 15 c. c. may be added to the water, but the quantity of water present in the laudanum and lead water preparation is too small to be of any benefit.

Dionin. Dr. F. Walther, in the *Cosmos,* calls attention to dionin as a substitute for morphin. Both he and Wood (see *Wood's Therapeutics*), claim that it has the advantage of possessing no unpleasant after effects. Wood states that its effects are, in a certain measure, lost when administered in conjunction with cocain, and recommends that the cocain be instilled after the administration of dionin.

Thymophen. Dr. Edw. C. Kirk announces a new preparation which he terms thymophen. It is made by rubbing together in a mortar, or combined by gentle heat in a beaker or porcelain dish, equal parts by weight of crystalized phenol and thymol, the result being a fluid of oily consistency, similar in physical characteristics to campho-phenique. He claims for it high germicidal efficiency without escharotic properties, and that it does not

coagulate the cuticle when applied topically. Dr. Kirk is to be congratulated upon his combination of thymol with so excellent a menstruum, and deserves the commendation of the entire profession for giving it to us without any effort on his part to "patent" the formula or market it as a pharmaceutical preparation.

Paraform. Paraform, or formaldehyd, as it is most frequently but erroneously called, continues to have its praises sung by all who have given it a trial. Formalin, which is the 40 per cent. solution of this drug, is entirely too strong for dental use. Dr. Burnett, in *Dental Record,* says that a 5 per cent. solution is as strong as it should be used, and that in most cases 3 per cent. and 2 per cent. solutions are of sufficient strength. He claims that "one or two drops of a 2 per cent. solution placed in the canal of a putrid tooth will, in two days, render it absolutely sterile and quite odorless."

Having given the method of using paraform, which was mentioned in my paper last year, a thorough trial, I am entirely satisfied with results obtained from its use.

Silver Nitrate. Dr. J. N. Crouse, in *Dental Review,* avers that he believes it to be good practice, when you have evidence of a superficial decay to touch it with silver nitrate and see how deep it will go. "In a few weeks that will show you how far the area of decay has gone. Often you need not go any further, as that will stop the decay."

Urotropin. Has been suggested as a valuable antiseptic. Its principal use, however, is as a uric acid solvent. It owes its antiseptic properties to the liberation of paraform and ammonia gases when exhibited in an acid media at the temperature of the human body.

Renoform. Is mentioned in the *Dental Review* by Chas. P. Haselden, of Hamburg, Germany, who says: "The active principal of renoform is suprarenin, obtained from the suprarenal gland. A very small quantity injected locally contracts the blood vessels, and thus, by shutting off the blood supply to the nerves, they lose all power of transmitting sensation. The few minutes needed to induce anesthesia is not lost time, for one can operate much more quickly, as well as better, if the patient is not suffering, and therefore remains quiet. In general, I would say that renoform is indicated, first, for extraction of teeth; second, for destroying pulps; third, for painless preparation of all cavities in otherwise sensitive teeth; fourth, for cleansing the roots of diseased teeth where the gum tissue is inflamed and sensitive; fifth, for preparing live teeth for gold crowns or bridges; sixth, for permitting the painless application of the separator."

Regarding renoform I wish to say that neither the latest editions of the United States Pharmacopoeia or Wood's Therapeutics make any mention of it whatever, and until it becomes an official preparation, I would advise that you not use it except in experimentation on the small animals along scientific lines. From what Dr. Haselden has said, I would judge that its action is almost identical with that of adrenalin, as it is also one of the suprarenal gland derivatives.

Adrenalin Chlorid.

The experience of I. N. Taylor (*British Dental Journal*) would indicate that adrenalin chlorid is contraindicated in pathological conditions of the pulp tissues as a topical application to same. Its use should be confined to freshly exposed or healthy pulps, in which cases he reports decided success. Others have had similar experiences with adrenalin in connection with cocain, and I might add that my observations have been practically the same as those of Dr. Taylor.

Mr. Creig, in *London Dental Record,* states that it has been ascertained that cocain dissolved in alcohol or chloroform acts better than when dissolved in adrenalin.

Dr. W. Clyde Davis gives the following formula for adrenalin and cocain solutions:

℞ Cocain hydrochlorid .....gr. 1-6
Adrenalin chlorid sol. .....gtt. i
Dist. extract witch hazel q. s. to fill syringe.
Sig. Inject as local anesthetic.

When the quantity of cocain is increased the adrenalin should be increased in proportion.

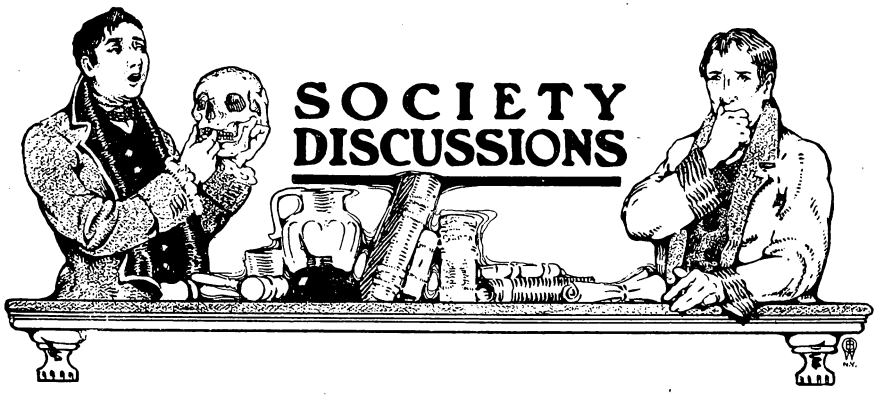
In connection with this suggestion, allow me to call your attention to the article in September, 1906, *Digest,* entitled, "A Plea for the More Conservative Use of Anesthetics, Narcotics and Sedatives in Dental Practice," by Dr. C. P. Pruyn.

This, gentlemen, is my report. I can not say that I am entirely satisfied with it myself, yet I trust it will answer the purposes for which it was intended.

In closing I would ask that you consider the suggestion of raising a committee on scientific research seriously. Such a committee could take the report I have just made, and at our next meeting could tell you whether or not the different remedies recommended for different pur-

poses are really meritorious in this section of our country: aside from their regular duties in original research work, that would be of inestimable value to the profession and its clientele.

I desire to rescind the statement I made last year in my paper before this body appropos of pulp numification. From a more extended experience with this method and close observation, I am now prepared to say that while this sort of treatment will keep the tooth quiet for a year or two, at the end of that time, when the antiseptic properties of the drugs are exhausted, you may expect to have your patient return to you with the tooth canals putrescent and requiring further treatment. This may not be true in some sections of our country, but in malarial districts I not only find this to be the case, but I have considerable trouble in devitalizing pulps by arsenical applications.



New Jersey State Dental Society, Thirty-seventh Annual Meeting.

The thirty-seventh annual meeting of the New Jersey State Dental Society was convened at the Auditorium, Asbury Park, N. J., Wednesday, July 17, 1907.

The meeting was called to order at 11.30 o'clock by the president, Dr. M. R. Brinkman, in the chair.

Dr. Woolsey, vice-president, then took the chair and Dr. Brinkman read the following address:

President's Address.

It gives me pleasure to welcome you at this our thirty-seventh annual meeting.

This year, like all previous ones, required hard, earnest work to bring about the result which I trust will meet the approval of all our members. Early in the year many matters of importance concerning the welfare of the Society presented, and it was deemed necessary to call a special meeting of the Executive Committee, at which time a plan of action was decided upon.

Many subjects were thoroughly discussed. It was deemed wise on account of the increased expense of conducting our meetings, that the price for space for our exhibitors be raised to meet the requirements.

The State Board reports sending out blanks for registration, showing the number of practicing dentists in the State. This compared with the numerical strength of the Society shows a low percentage of membership and is inconsistent with the prestige of this State Society with other States. The subject was thoroughly discussed by the Executive Committee at its January meeting, and after careful consideration it was decided to debar resident dentists of this State from meetings and

clinics unless they make application for membership. This is only following the precedent of other States, who have of late years practiced this method and gained many accessions in their membership.

Every facility before and during the meeting will be given the dentists of the State to become members, through any of the officers of the Society.

The Exhibit Committee, under the chairmanship of Dr Woolsey, deserve great credit for their efforts: the beautiful array of exhibits speak for themselves.

The Clinic Committee, under the leadership of Dr. Dilts, have been untiring in their efforts to obtain clinics which will interest and instruct our members, and the results of their work is very gratifying.

The Essay Committee, under the guidance of Dr. Jaquette, have arranged some of the most interesting papers, and deserve our thanks.

As can be seen by our programmes our secretary, Dr. Meeker, the man who never tires working for this Society, produced a work of art of which every member of this Society should be proud.

Your Legislative Committee, under the chairmanship of Dr. Duffield, have had some very interesting sessions, and copies of the result of their meetings, in the shape of new and proposed amendments to our present dental laws have been mailed to every member, and I trust has been carefully read, so that you may vote on the same knowingly.

While on this subject, I would suggest that the duties of the Legislative Committee be more specifically defined, so that in the future there will be no question as to the extent of their power.

I presume that you are all aware that a great national convention will be held at Jamestown in September, and I hope to see every member of this Society present, so that the name of the New Jersey State Dental Society will be ever foremost, and I also trust that our State will be well represented among the list of clinicians.

I regret to say that on account of the impaired health of our esteemed friend Dr. Steele, chairman of the Committee on the Examination of Children's Teeth in Public Schools, that work has not progressed very rapidly, and I would suggest that every member of that important committee consider himself a chairman and do something to further the cause and not leave the whole burden on the actual chairman.

I wish to take this opportunity to thank the members of this Society and the several committees for the earnest and hearty support given me during my term of office, and I trust the harmony and good fellowship which has elevated this Society to its high and exalted position will continue to prevail, and the reputation of the New Jersey State Dental Society remain at the pinnacle, where it justly belongs.

Discussion.

The Vice-President. You have heard this admirable address of our president. It is now open for discussion. I hope you will all freely take part.

Dr. C. S. Stockton. The president refers to the membership. It is astonishing that there are so few members in attendance. We have a list of registered dentists of 1026, and instead of having two hundred members in this Society we ought to have at least five hundred; indeed, we ought to have a thousand, and I am not sure but that we ought to have 1026. Why do we not have more? That has been the problem for years, and we have seemed to be unable to solve it. You have attempted to solve it this year by excluding from the meeting all who are not members of this Society. To the Executive Committee perhaps that may seem a wise step; I am not prepared to say to-day that it is or is not. Last year only eight joined the Society. Unless a very much larger number than that join this year this effort will be a failure. I sometimes think I am liberal enough to let them come in and derive the benefits that accrue to them here, but the Executive Committee in its wisdom thinks otherwise. There is another element that will tend to successful membership, that is, the abandonment of the initiation fee of five dollars. Now five dollars initiation and three dollars dues, that makes eight dollars, and eight dollars looms up as big as eight silver dollars before the eyes of a good many young men, and they are consequently deterred from coming in. I would recommend that the Membership Committee offer an amendment dropping this initiation fee: I think it would be a wise thing to do.

Dental Legislation. Now this Legislative Committee that the president has referred to I think has far exceeded the object for which it was appointed. They have formulated an entirely new law. The old law has worked well; there is no question about that, and I do not see why it should be changed. Is there anybody here to-day who would care to have a certificate of membership, or who would rather have a license to practice dentistry in the State of New Jersey signed by our present Secretary of State? (Applause.) Not a single one of you would want to have a certificate to practice dentistry in this or in any other State signed by such a man. I say to you that the dentist should have his license signed by dentists, not by the chairman of the Board of Health or some other outside individual. Let us adhere to that which has carried us safely over the rough places for so many years, rather than to set aside the men who have done the work, men whose names should go on the certificates of those who pass their examination,

rather than the president of some board or the secretary of a council that perhaps knows nothing about the character or qualifications of a dentist.

Interchange.

Only one thing more, and although it is not especially referred to in the president's address, I can scarcely let an occasion like this pass by, as I have taken such interest in it in the past, without referring to the matter of interchange of licenses between State Boards. I have become wise in finding that they have not taken to this idea as rapidly as I supposed they would. The idea is a good one and interchange should be in existence. Nobody controverts that, and yet it is not accomplished. Twice the National Board has taken up the matter and unanimously recommended it to the State Boards, but only a few of them, apparently, have adopted it. Strangely enough we have, right in our existing law, what is perhaps a better solution of the matter than the Asheville one, and I may present a resolution that our examiners who attend the National Board be instructed, if possible, to have this section of our law recommended to the various States as a part of a law of all the States, and that will settle the matter so far as law can settle it. The sixth section of our statute says: (Reading)

"Said Board shall register as licensed dentists, and under its seal and the hand of its president and secretary, issue to all persons who shall successfully pass said examination, its license to practice dentistry in this State."

This is the part: (Reading.)

"The Board may also, without the examination hereinbefore provided for, issue its license to any applicant therefor who shall furnish proof satisfactory to it, that he has been duly licensed after examination, to practice dentistry in any State, after full compliance with the requirement of its dental laws, and has been lawfully and reputably engaged in said practice for five years next preceding his application: *provided, however,* that his professional education shall not be less than that required in this State: every license so given shall state upon its face the ground upon which it is granted, and the applicant may be required to furnish his proof upon affidavit: the fee for such license shall be fifty dollars."

That covers the whole ground, that is, interchange of licenses. Anyone who has passed his examination in New York, Connecticut, Massachusetts, Indiana or Ohio, and comes to New Jersey may, under that section of our law, practice dentistry in New Jersey. It does not say that the Board *shall* issue him a license, but it says that the Board *may*. So that if such a man has not behaved himself in the meantime, they have it in

their power to say, "We don't want you." As I say, that is interchange of license, and is perhaps a better provision of law than the one I thought so much of, and I should be glad to have that incorporated in the recommendation to the National Board as the law of all the States, so that the reputable dentists of any one State may practice their profession in any other State in the Union. (Applause.)

Dr. R. Ottolengui. The trouble about the whole problem of interchange is that nobody is really interested in it except a few itinerants and a few men who have lost their health, and for that or for other good reasons desire to leave the State. It is a beautiful theory but difficult in practice.

In regard to what has been said as to restricting admission into this convention, I must say that I believe that the New Jersey State Dental Society, after opening its doors for thirty-six years and learning a lesson, is perfectly justifiable in closing its doors to those who are willing to take all they can get, but are not willing to pay. It may lessen your income for a little while, but if you have the courage to adhere to it for two or three years I believe you will have a larger membership, a larger attendance and a stonger and a better Society. I think it is time to teach these people that if they want the benefits of the experience and knowledge of the best men in the profession they should be willing to pay for it. At the same time I agree with Dr. Stockton that the little money which our Society takes in from initiation fees could be dropped with profit. In an organization of this kind it is a mistake, for you don't make new members of old men as a rule; what we are trying to do is to get the young men in, men who are just starting in as dentists. It seems to me that it would be much more feasible to make the first year's dues nominal instead of excessive. Two dollars for the first year and three dollars after would be better than eight dollars the first year and three dollars after. (Applause.)

Dr. Chas. A. Meeker. Mr. President and gentlemen, I have been to many State Dental Society meetings throughout the country, and I want to say that nearly every president's annual address is academic in its nature. But we have with us a president who has worked, and you see the effect in his address, of a man working for the good of the Society. There is nothing academic about his address; he takes up the subjects that the Society most desires, and he treats them all just as he does every bit of work in his office.

Now Dr. Stockton has touched on the subject of whether it has been a mistake or not to bar out dentists who are not members of the Society. I have taken a great deal of interest in that matter for many years, and

as I look around me here I see men who have worked in the Society for twenty-five or thirty years. What have those men been working for? To raise the standard of their own profession among themselves and in the minds of the public. But when men come here from all over the State and attend our meetings and our clinics, and put their hands over their pockets and then go away and make improper criticisms of what we are doing, we are right to protest. It cost the Society last year $1100 for the meeting, and we are working all the time to make the Society a strength in our State, and incidentally we are doing many things that are helping these very men who decline to pay any money; we are helping the dental parlors to get more money, because we raise the standard of the profession. The newspapers of the State give us twice the space in their columns that they did a few years ago. Why? Because of what the State Society has been doing year in and year out. I hope this principle of barring out New Jersey dentists unless they become members will continue, and I think we have made no mistake whatever in that matter.

Dr. H. S. Sutphen. Mr. Chairman, I am very much pleased with the president's report. In it he embodies a great many things which are worthy of our most serious consideration.

In regard to the amount of initiation and dues for membership in the Society, it seems to me that we could, with profit to ourselves and advantage to our confreres, lessen the fee for initiation. But this meeting is very expensive. As has been said, it costs us anywhere from nine hundred to twelve hundred dollars. The treasurer tells me that this meeting will cost about $1500. I think we could reduce the initiation fee to two dollars, and still maintain the annual dues at three dollars. I would favor some such arrangement.

As far as the new rule excluding all dentists not members of the Society, I think we have made a move in the right direction. It does not seem right that a few members of the profession in the State should devote their time, labor and money to support the Society and to have such meetings as we give here year after year, and then allow everybody else to come in and reap the benefit without cost to themselves. This is not an experiment in the dental profession; the States of Massachusetts, Connecticut, Alabama, Illinois, California and several others have tried it and have found it to be a success, not only in getting new members into the Society, but because of the fact that it interests a larger number of dentists in the work of the Society, weeding out to a large extent the advertising and unethical dentists, and I await with a great deal of anxiety and with a great deal of interest the outcome in our own Society.

Dr. David C. Baker. Mr. Chairman, I am glad to have been here and to have heard our president's address. I think he has made some very fine recommendations in it, particularly the one in reference to the Legislative Committee. It strikes me, according to the by-laws of the Society, that our Legislative Committee has no power whatever, and it seems to me that at this meeting something should be done defining the powers of the Legislative Committee. It should be stated just how far they can go, whether or not they have power to formulate a law and present it to any legislative body without a vote of the Society. I think it would be well if an amendment were made to our by-laws distinctly stating what the Legislative Committee shall do and what its duties shall be.

In reference to our membership, I do not know that I am entirely in favor of cutting off the initiation fee. I am somewhat of the opinion that a thing that costs nothing is worth nothing, and although an expenditure of eight dollars may be a hardship on the young men just starting out in business, I think we should have some initiation fee, say making the sum total of expenditure to a man joining the Society five dollars, and then make the dues two dollars. This scheme of keeping out men who are not members I think promises to work well, because I have heard of three men making application to join the Society knowing they could not get in without. I am told that some societies exact a fee from outsiders who wish to visit its conventions, a fee equal to one year's dues, and it strikes me that even if they do not join we could charge one dollar or two dollars to a dentist who wants to visit the clinics. There is no reason why we should spend our money for the benefit of the many outsiders who want to see all and pay nothing.

Dr. R. W. Jewett. I am very glad to be here to-day. Having been a wanderer for six years it seems like coming home to be again in a meeting of the State Dental Society. I agree with what Dr. Ottolengui said about interchange not being practicable. In the Western States I think it would be voted down. There is a great deal of jealousy between the Western and Eastern States on the subject of interchange of license. You have no conception of the political interference there is until you have been out in the Western States: then you will see the force of Dr. Ottolengui's remarks as to interchange not being practicable in all States. In the Western States the members of the various boards are practically mere figureheads controlled by politicians.

Dr. Wright, Troy, N. Y. I did not hear the president's address as I did not get in in time, but from the remarks I have heard during the progress of this discussion I feel almost as though I was intruding, as I am not a member of

the Society, not being a resident of the State. But I want to say that certainly for thirty years I have not missed a meeting of my own State society, and I feel perfectly at home among dentists. I wish particularly to refer to the remarks of Dr. Stockton in regard to the interchange of licenses. New York State has interchanged about eighty licenses with Pennsylvania and New Jersey during the past year, and I think that the Board in that State takes the ground that they are willing to interchange with any State which will come up to the requirements of New York State. That has been the trouble, especially with some of the States, that they would like to interchange, but do not require for a license the same qualifications as are required in our own State, and until the States can adopt very closely the same examination I can not conceive how we can expect the granting of licenses promiscuously through the States. Even to-day the New York State dentists will tell you that they would rather take their examination in Pennsylvania than in New York State; and when you come to some of the middle western States you find it still easier to obtain a license, and for that reason it is very difficult to interchange.

Dr. W. A. Jaquette. May I ask the secretary to explain to the Society the action of the Executive Committee regarding the exclusion of dentists? I think Dr. Wright has misunderstood it. It is my understanding that the New Jersey State Dental Society does not wish to exclude any other than New Jersey dentists? We very gladly welcome dentists from other States; they are not expected to join the Society.

Dr. Meeker. Dr. Jaquette is entirely right; all dentists practising in other States are perfectly welcome, but all New Jersey dentists not members of the society are barred unless they make application for membership. Dr. Wright is perfectly welcome here.

(At this point on motion, duly seconded, the discussion was closed and the president resumed the chair.)

The President. I wish to thank you gentlemen for receiving this address in the spirit you have. It goes to show that one of the best features of our meetings is these discussions. The next order of business will be the reading of communications.

The secretary read a letter from Dr. Edwin Chew, age 74, of Salem, resigning as a member of the Society, and on motion, duly seconded, the resignation was accepted.

The resignation of Dr. Chew having been accepted, on motion of Dr. Stockton, duly seconded, Dr. Chew was made an honorary member of the Society.

The secretary next read the resignation of Dr. E. T. Wheaton, which, on motion duly seconded, was accepted.

The secretary next read the resignation of Dr. Eugene H. Taft, which, on motion duly seconded, was accepted.

The secretary next read a communication from Mr. George Emory Adams, requesting that certain books, the property of Dr. Fred. Levy, deceased, be taken care of by the Society, which communication, on motion duly seconded, was referred to the Executive Commitee.

The secretary next read a communication from the Connecticut State Medical Society, which communication, on motion duly seconded, was referred to the Executive Committee, to be brought up on a later occasion.

The secretary next read a communication from Dr. W. A. White, former president of the New York State Dental Society, which communication, for the appointment of a Committee on Oral Hygiene to work in union with the National Association, on motion duly seconded, was referred to the Executive Committee.

The President. Has the chairman of the Membership Committee anything to report? If so, it will now be in order.

Dr. W. F. Naylor. Mr. President, I have between twenty-five and thirty applications, but some of those are not ready for presentation this morning, having been handed to me to make out notices only this morning.

The Secretary. I move that those applications that are not ready to be presented at this time be referred to a committee, to be reported on at a later date as regards their fitness.

The secretary's motion was duly seconded and it was so ordered.

On motion, duly seconded, that the secretary cast the ballot, there being no objector, the following were elected members of the Society: Dr. J. S. Miller, Trenton, N. J.; Dr. Charles F. Harper, Jersey City, N. J.; Dr Raymond Adair Albray, Newark, N. J.; Dr. N. W. Leard, Jersey City, N. J.; Dr. George H. Griffith, Trenton, N. J.; Dr. Isaac P. Lowe, Sussex, N. J.: Dr. Vedder Marcellus, Manasquan, N. J.: Dr. G. B. Amack, Keeport, N. J.: Dr. Arthur S. De Voe, Newark, N. J.: Dr. Thomas H. Pratt, Asbury Park, N. J.: Dr. Albert H. Wallace, Upper Montclair, N. J.; Dr. R. K. Morgan, Woodbury, N. J.

The President. I desire to announce that Dr. Frederick C. Kemple, of New York City, will read a paper at this evening's session on the subject "Orthodontia in Relation to the Development of the Bones of the Face," and that Dr. Tag-

gart, of Chicago, at to-morrow morning's session, will read a paper on the subject, "Casting Inlays of Gold, Alloys and Other Metals, also Combination Gold and Porcelain Inlays."

There being no further business before the meeting, on motion, duly seconded, adjourned to meet again at 8.30 in the evening.

Central Dental Association of Northern New Jersey.

The regular meeting of the Central Dental Association of Northern New Jersey was held at the Cafe De Jianne, Newark, N. J., on Monday evening, November 19, 1906. After the roll call, the president introduced Dr. Lionel M. Homburger, of New York, who read a paper entitled "Some New Ideas in Porcelain Work," which will be found elsewhere in this issue.

Discussion.

Dr. Benj. F. Luckey, Mr. President and Gentlemen: While I love to take part in the discussions of our society, I do also love to understand the subject which I am supposed to discuss, and I confess that the matter of porcelain inlays is one which I do not feel that I do thoroughly understand—only partially, and very partially at that. I among others of the dentists have been very much interested in this subject ever since it was first brought to the attention of the profession. It seemed to me, when it was first suggested and first brought to our notice, that it was the thing that I had long been seeking and wanting. I provided myself with the means of carrying on this part of our practice and have been very sincere and earnest to my efforts to give to my patients the best that I possibly could in this line. This has been going on now for several years, and I have been slowly reaching the conclusion that while there is a place for porcelain inlays in the restoration of broken teeth, that it is an operation that must be governed by exceedingly good judgment and exquisite skill to obtain the results that we wish and that our patients wish; that for general practice it is not available; that its outlook and the prospect for the use of porcelain in general practice as carried on to-day by porcelain specialists is nearing its end. Like all other good things, it has its place. But not all men who essay to do porcelain work are artists, and no man can be a success, in my opinion, in the use of porcelain unless he has the

artistic temperament combined with exquisite mechanical skill. Dr. Homburger to-night has presented to us some very interesting and, I think, practical points. Were Dr. Homburger to undertake to apply these methods to all cases, regardless of articulation, regardless of the shape of the cavity, he would meet with a great deal of failure. The man, in my opinion, to-day who has done the greatest amount of porcelain inlay work is the man who is going to meet with the greatest amount of failure in the near future. Let one select his cases where the environment is of the proper kind, let him at the same time have this particular artistic temperament or skill or taste that I have mentioned, along with the mechanical skill to construct and insert his inlay properly, and he will probably have a success; but I say to you, gentlemen—I may be conservative—there never has been, and up to the present time there is nothing yet known that for durability and for teeth saving qualities will equal gold skilfully inserted. There are objections to it, but I am speaking now not of individual cases, but of general practice—and we all depend upon general practice for our successes and for our reputations. Nothing has ever been used and nothing at the present time is in view that will equal the use, the skillful use of gold. I have nothing to say concerning the methods of Dr. Homburger except that they seem practical; they seem good; but, gentlemen, do not undertake to carry this porcelain work too far. Use judgment, combine it with skill and I have no doubt that you will have few cases to worry you and cause sleepless nights and the wish that you had never known anything of porcelain.

Dr. S. C. G. Watkins. The cases that Dr. Homburger has described are cases which have bothered all of us, in and about the corners and ends where teeth have been broken. It has seemed to me for a great while that those are the places where porcelain could be used advantageously. I feel very much as Dr. Luckey does in regard to porcelain work. If I could talk as well as Dr. Luckey I would have made Dr. Luckey's speech; so we will take it that he has made my speech; I gave him the cue before the meeting, knowing that I was going to be called on, and then Dr. Luckey, knowing how I felt, thought the subject over and made my speech according to what I had told him. So, gentlemen, since he has been kind enough to do that I do not feel that it is quite right for me to take up your time. I thank you for calling upon me, and I also thank Dr. Homburger for reading the paper. I think it has really been instructive.

Dr. Luckey. Don't you thank me, too?

Dr. Watkins. I thank you, too.

Dr. Hardy. I think Dr. Homburger's paper has been very instructive. There are a few points with regard to the corners that are new to me. I believe his method

is a pretty good one; I think you can put on a better corner in that way than by attaching the pin in the porcelain. With regard to matching the shades, I think the method Dr. Homburger speaks of is a good idea, but I think that the man who obtains correct colors in his porcelain inlays must go a little further than Dr. Homburger suggests. It requires matching and blending of the colors. You can not take a color and make the whole inlay of it and get a shade which will harmonize. An inlay should be made up of several pieces of porcelain blended together; that is my experience. I also use some colors in connection with my porcelain, and I think you can get a more artistic effect—more natural. I must say that I disagree with Dr. Luckey. If you will allow me to discuss Dr. Luckey's remark I think that porcelain is the coming material for filling teeth.

Dr. H. S. Sutphen. I think the essayist's method of preparing the cavity is certainly a great improvement over no pin at all. I think that this way of securing colors is very good. You seldom find two teeth—two individuals—that require the same shade, and it is almost always necessary to do considerable blending and matching to get the colors that you desire, and it is a matter of a great deal of experiment and a great deal of practice. I can hardly indorse the statement of the gentleman from Paterson that porcelain has about reached its end. I do not think we have begun to appreciate the full value of porcelain. I do agree with him when he says that it should be used with great judgment and with great skill, and I think that when we shall have used it as long as we have used gold we will have just as much skill in the insertion of porcelain inlays and porcelain corners or other porcelain work, and get as permanent results as we get now with gold. I find that as time goes on it takes me less time to insert these porcelain inlays than it formerly did. At first it was a great hardship to do this kind of work because of the length of time which it required. I have many a time spent two or three hours on a porcelain inlay and then have not been satisfied. I tell my patients that a comparatively poor porcelain filling on the edge of the tooth is better than a good gold filling, because it is very much less conspicuous. We all know that in many portions of Europe the people will not submit to a gold filling, and they would rather come three or four times a year and have a cement filling put in than have a good gold filling. If they are satisfied with cement fillings in their teeth, which certainly do not match the structure of the teeth at all, and are satisfied to have them replaced quite frequently rather than have a gold filling, I can see why people should be more satisfied with an inlay which more approximately matches the color of the tooth than cement does, and to have even a poorly matched porcelain

inlay than a good gold filling. My patients—many of them—say that if I am not as successful as I would like to be in the matching of the shades, still they are satisfied. I have in the last few months taken out a number of the inlays which I had put in first and have replaced them with others which I think very much better than those first put in, both in the matching of the shade and in the general artistic effect of the work itself, and I am more than glad to do that for my own satisfaction as well as for the beautifying of the mouths of my patients. I try as far as I can to do the best that I can for the good of my patients. That is the way I feel about it. Whatever is best for them in keeping their mouths in order, in preserving their natural teeth as long as possible—that is what I like to do and that is what I try to do: and I do feel that porcelain has come to stay and it will be used more and more by those who conscientiously and faithfully try to do their best with it.

Dr. G. Emory Adams.

In South Orange there is but little porcelain work done, but I feel that I can take issue with some of the gentlemen who have spoken. I hardly feel that porcelain work has reached its zenith yet, nor do I feel that it is superior to gold. Not very long ago I had the privilege of seeing two central incisors, the approximal corners of which had been filled with gold. They extended very nearly up to the gum margins.

The patient told me that these fillings had been in eighteen years. I examined them critically for any leakage and I failed to find any. Now, Mr. President, I do not believe that any porcelain inlay that has ever been inserted will last eighteen years and preserve the teeth as these gold fillings are preserving them at the present time. I think a great deal of the trouble with inlays is due to careless manipulation. Sufficient care is not taken in the preparation of the matrices, and then the baking is allowed to progress too rapidly; the temperature is allowed to rise too rapidly; and then when it is completed it does not fit the cavity as it should. An attempt is made to grind it out to fit, with the result that the inlay is a failure. Too many attempts are made to restore a tooth with porcelain where there is such an amount of caries that it can not possibly stand it, and there is a breakage. That is another cause of failure. I might state dozens of different causes of failure and still operators are determined to use it with lack of judgment.

Dr. Hyatt, Brooklyn.

We are all practically new in this porcelain work. I agree with some of the speakers that we are not familiar with it; but when we have become as familiar with porcelain inlays as we are with gold work, I do not doubt but that we shall have as many skilled operators in porcelain as there are skilled operators in gold. I think the

future of porcelain is bright. When you take into consideration the number of gold fillings that we have to-day, I do not think the percentages of failures in porcelain inlays is discouraging. When failure comes, as sometimes it will, the operator, instead of being discouraged, should start out and find out what was the cause.

Dr. Homburger. In answer to Dr. Luckey I would like to say that although I have put in a great number of inlays I do not consider porcelain proper for all kinds of work. If we overdo anything we are bound to have failures. We must realize its capabilities and use it to the best of our knowledge, and not try to put porcelain in every cavity. As a rule, I will not put a porcelain inlay further back than an anterior cavity in a bicuspid tooth. If I have any very large cavities to fill I always use gold.

In regard to the preservation of teeth you will find that teeth of soft character will be preserved much better by means of porcelain than they may be by gold filling.

Dr. Hardy spoke of the necessity of having several shades in porcelain work; that is very true; sometimes there are two and sometimes three shades in a tooth. Consequently it is a great saving of time if, when we have made a shade, we keep a record of it and have it to compare.

EDITORIAL

The Jamestown Dental Convention.

The Jamestown Dental Convention was a decided success. The papers were good, the clinics excellent, and the attendance even larger than had been anticipated. It was reported that the receipts from all sources would cover all expenses, and as these were necessarily large the Organization Committee may be congratulated: indeed, congratulations are due them for promoting and managing one of the best meetings of recent years.

In one respect this convention will mark an epoch in dental history. It was the first meeting at which the entire time was occupied in discussing papers which prophesy the passing of the gold foil filling. Of the four papers, one was devoted to orthodontia. The others, purely dental in character, were as follows: Dr. Van Woert presented an argument in favor of cemented fillings in preference to those mechanically retained. Dr. Alexander described his various methods of making gold inlays, and Dr. Taggart demonstrated his technique in relation to cast gold inlays.

Inlays of Gold and Porcelain.

That the cemented filling will, from now on, maintain a permanent place in dental practice there can be no doubt. To what extent it will displace gold foil, and other mechanically retained fillings, will depend upon the conservative good sense of the profession at large. In the first wave of excitement and pleasure always engendered in man by the presentation of new ideas, the pendulum may swing too far in one direction: but it will return, and presently equilibrium will be established. Then it will be discovered that the best dentist will be the one wise enough to choose the proper place for filling or inlay, for porcelain or gold, and skilled to make a permanent success with either.

It may be prophesied, epigramatically, that "the perfect gold inlay will take the place of the imperfect gold filling," though it will as often displace the slovenly amalgam monstrosities of the past. The gold foil maniac is the man so skilled in the manipulation of gold foil that he can place it almost anywhere, and believes that he can place it anywhere, and with equal success in all places. Such men in the egotism of their own skill condemn those that hesitate to follow their precepts, yet many that have done so have done it to their cost, and worse yet, to the cost of their patients. The great future usefulness of the Taggart process lies in the fact that it will enable a vastly greater number of men to save those teeth most in need of salvation, and that at the same time both patient and operator will be benefited: the patient enduring less and the operator working less.

The Exhibit Nuisance.

The one blot on the management of the Jamestown convention would not be mentioned here were it not a growing evil. Apparently the dental meetings of to-day are largely dependent upon exhibitors, but the exhibitors should not take undue advantage of that fact. They should remember that the managers and themselves are interdependent. If the former need money for expenses, the latter likewise need the meeting at which to expose their wares. Primarily a dental meeting is organized for the advancement of dental science, and however much men may be attracted by clinics and exhibits, the majority likewise desire to hear the essays and discussions. This was practically

impossible at Jamestown, because of the continued noise in the exhibit room, which adjoined the convention hall. Exhibitors should be content to show goods during exhibition and clinic hours. They should be willing to close up completely during the reading of papers. If they are not, organization committees in future should endeavor to eliminate the exhibit room.

William R. Blackstone.

After an illness lasting about ten days, Dr. William R. Blackstone died at his home, 20 Appleton Street, Manchester, New Hampshire, August 3, 1907. Dr. Blackstone had been a sufferer from rheumatic fever, but the direct cause of his death was embolism of the heart. His age was forty-seven years and four months.

Dr. Blackstone was one of the best known dentists in New Hampshire. He was born in Butlerville, O,, March 18, 1860, the son of Joel and Sally E. (Philips) Blackstone, both natives of that town. He attended the public schools of Butlerville, and after finishing decided that he wanted to learn dentistry. He attended Ohio University, and Wesleyan University of Delaware, O. He studied dentistry three years in Greenfield, O., and later was graduated from the Ohio Dental College in 1880. He practiced two years in Newcastle, Ind., and in the fall of 1881 moved to Manchester and worked in the office of Dr. C. W. Clement for five years.

In 1886 he formed partnership with Dr. Fred F. Fisher, with offices in The Pickering, the dissolution taking place in 1899. He was known as a very fine and skilful operator. Dr. Blackstone was at one time chairman of the State Board of Examiners. On December 12, 1888, he married Miss Carrie I. Stevens, daughter of William T. and Sarah A. Stevens, of this city.

Dr. Blackstone was a whole-souled man, generous at heart, and it will be the friends who knew him best that will miss him. He was a member of Trinity Commandery, Knights Templar, Washington Lodge A. F and A. M., and the Derryfield Club. He attended the Franklin Street Church.

Left to mourn his loss are a wife, a mother, Mrs. Joel Blackstone, of Butler, O., and two brothers, John and Joel Blackstone, of Dallas, Texas.

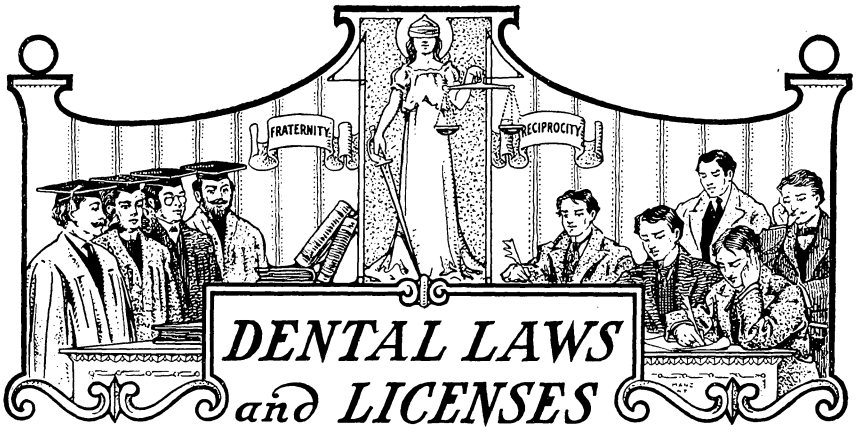
W. D. Miller Dental Club.

Whereas, Geheim Medicinalrat Prof. Dr. Willoughby D. Miller, the great scientist and beloved friend for whom our club was named, has been removed by death, therefore,

Resolved, That in common with all the members of our profession we deeply mourn our irreparable loss.

Resolved, That as we were united to him not only by the admiration and respect which his scientific work spontaneously evolved, but also by the ties of warm personal friendship, we hereby pledge ourselves to cherish forever the memory of his example, which shall inspire us to higher devotion to our profession, to broader charity, to nobler living and to deeper compassion toward suffering humanity, whom he served so well and so unselfishly.

GEO. O. WEBSTER, President.
T. D. BARROWS, Secretary.



Extract from Minnesota Dental Statute as Amended in 1907

Sec. 2316. EXAMINATION—LICENSE—REVOCATION — ASSUMED NAME.—A person not already a registered dentist of the State, desiring to practice dentistry therein, shall apply to the secretary of the board for examination, and pay a fee of $10, which in no case shall be refunded. At the next regular meeting he shall present himself for examination and produce his diploma from some dental college of good standing, of which standing the board shall be the judges. The board shall give the applicant such an elementary, practical examination as to thoroughly test his fitness for the practice, and include therein the subjects of anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, and operative, surgical and mechanical dentistry; and the applicant shall be required to demonstrate his skill in operative and mechanical dentistry. If the applicant successfully passes the examination, he shall be registered by the board as a licensed dentist, and supplied with a certificate of registration signed by *all members of the Board of Dental Examiners.*

Provided, that any dentist who has been in legal practice in another State having and maintaining an equal standard of laws regulating the practice of dentistry with this State, for five years or more, and is a reputable dentist of good moral character, and is desirous of removing to this State, and deposits in person with the Board of Dental Examiners a certificate from the Examining Board of the State in which he is registered, certifying to the fact of his registration and that he is of good moral character and professional attainments, may, at the discretion of the board, be granted a license to practice in this State without further theoretical examination.

The Board, upon hearing, after twenty days' notice thereof, may revoke the license of any one who, with intent to deceive the public, shall practice dentistry under an assumed name. It shall be no defense for a person prosecuted for practicing dentistry under one name, without a license, that he shall have been licensed under a different name, unless it be shown that such practice was without intent to defraud or deceive.

SOCIETY ANNOUNCEMENTS

National Society Meeting.

American Society of Orthodontists, Detroit, Mich., Oct. 2, 3, 4.

State Society Meetings.

Arizona Board of Dental Examiners, Phoenix, Ariz., Nov. 11, 12, 13.
Fourth District Dental Society, Schenectady, N. Y., Oct. 15, 16.
Illinois Board of Dental Examiners, Chicago, Ill., Nov. 4.
Northeastern Dental Association, Portland, Me., Oct. 16, 17, 18.

Illinois Board of Dental Examiners.

The annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held in Chicago, at the College of Dentistry of the University of Illinois, northwest corner of Honore and Harrison Streets, beginning Monday, November 4, 1907, at 9 A. M.

Applicants must be in possession of the following requirements in order to be eligible to take the examinations: (1) Any person who has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other State or country for five consecutive years

just prior to application; or (2) is a graduate of and has a diploma from the faculty of a reputable dental college, school or dental department of a reputable university; or (3) is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary, on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee of twenty ($20) dollars, with the additional fee of five ($5) dollars for a license, must accompany the application.

Address all communications to J. G. Reid, secretary, 1204 Trude Building, Chicago, Ill.

Arizona Board of Dental Examiners.

The Board of Dental Examiners of Arizona will meet at Phoenix November 11, 12 and 13, 1907, for the purpose of holding examinations. The fee, of twenty-five dollars ($25), should be in the hands of the secretary twenty days before date of meeting. For further particulars address

J. Harvey Blain, Secretary.

Box 524, Prescott, Ariz.

New Jersey State Board of Registration and Examination in Dentistry.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination beginning Monday, December 9th, and continue through the 10th and 11th. Practical operating and practical prosthetic work will begin 8 A. M. Monday, December 9th. Photograph and preliminary credentials must accompany the application. Meeting held in the State House, Trenton, N. J.

For full information address the secretary, Charles A. Meeker, D.D.S., 29 Fulton Street, Newark, N. J.

The Southern Illinois Dental Association.

The fifteenth annual meeting of the Southern Illinois Dental Society will be held in East St. Louis, Ill., on the 22d and 23d of October. The president and members of the executive committee are putting forth every effort to prepare an interesting programme, and it is hoped that every dentist in our territory will do his part to make the meeting a memorable one.

HARRY K. BARNETT, Secretary.

Rhode Island Board of Registration.

The Rhode Island State Board of Registration in Dentistry will hold its next meeting for the examination of candidates at the State House, Providence, November 6, 7 and 8, 1907, beginning each day promptly at 9 A. M.

Applications, together with the fee of twenty dollars, if first examination, should be in the hands of the secretary not later than November 1.

W. S. KENYON, Secretary.

301 Westminster Street, Providence, R. I.

Connecticut State Dental Commissioners.

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford on Wednesday, Thursday and Friday, November 6, 7 and 8, 1907, to examine applicants for license to practice dentistry, and for the transaction of any other business proper to come before said meeting.

All applicants should apply to the Recorder for proper blanks and rules for conducting the examination. Application blanks must be filled in and sworn to, and with fee, filed with the Recorder on or before November 1, 1907.

By order of Commission.

GILBERT M. GRISWOLD, Recorder.

703 Main Street, Hartford, Conn.

Minnesota State Board of Dental Examiners.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held in Minneapolis at the Dental Department of the State University, on Tuesday, November 12, 1907.

All applications must be in the hands of the secretary by October 29, accompanied by the fee of $10.

Examinations begin at 10 o'clock sharp on the following subjects: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Metallurgy, Pathology, Oral Surgery, Orthodontia, Operative and Prosthetic Dentistry. The practical examination consists of the preparation of a cavity and the making of a gold filling or the preparation of the root and the making of a crown, or both, for a patient supplied by the board.

All instruments and materials necessary to perform the required operations must be brought to the examination by the applicant.

A diploma from a recognized college must be shown. Any further information will be gladly furnished by

DR. GEO. S. TODD, Secretary.

Lake City, Minn.

New Hampshire Board of Registration in Dentistry.

The New Hampshire Board of Registry in Dentistry will hold its next meeting for examination December 3, 4 and 5, 1907, at Masonic Banquet Hall, Manchester, N. H.

A. J. SAWYER, D.D.S., Secretary.

Maryland Board of Dental Examiners.

The Maryland Board of Dental Examiners will meet for examination of candidates for certificates November 6 and 7, 1907, at the Dental Department of the University of Maryland, Baltimore, at 9 A. M.

For application blanks and further information apply to

F. F. DREW, Secretary.

701 N. Howard Street, Baltimore, Md.

The National Dental Association Officers, 1907-08.

The National Dental Association, at its eleventh annual session, Minneapolis, July 31, elected the following officers for the ensuing year: President, Wm. Carr, New York city; vice-president for the East, Wilbur F. Litch, Philadelphia, Pa.; vice-president for the South, J. P. Gray, Nashville, Tenn.; vice-president for the West, Alfred Owre, Minneapolis, Minn.; corresponding secretary, Burton Lee Thorpe, St. Louis, Mo.; recording secretary, Chas. S. Butler, Buffalo, N. Y.; treasurer, A. S. Melendy, Knoxville, Tenn.

Executive Committee.—(New members.) L. Meisenberger, Buffalo, N. Y.; F. B. Kremer, Minneapolis, Minn.; M. F. Finley, Washington, D. C.

Executive Council.—H. J. Burkhart, chairman, Batavia, N. Y.; J. Y. Crawford, Nashville, Tenn.; A. H. Peck, Chicago, Ill.; F. O. Hetrick, Ottawa, Kan.; B. Holly Smith, Baltimore, Md.

Next place of meeting Boston, 1908.

BURTON LEE THORPE, Cor. Secretary.

New Jersey State Dental Society.

List of officers of the New Jersey State Dental Society elected at their July meeting: Walter Woolsey, D.D.S., president, Elizabeth, N. J.; Frank G. Gregory, D.D.S., vice-president, Newark, N. J.: Charles A. Meeker, D.D.S., secretary, 29 Fulton Street, Newark, N. J.; Dr. Henry A. Hull, treasurer, New Brunswick, N. J.

Executive Committee—Frank G. Gregory, D.D.S., Chairman, 7 West Park Street, Newark, N. J.; Harvey Iredell, D.D.S., New Brunswick, N. J.; Charles H. Dilts, D.D.S., Trenton, N. J.; W. A. Jaquette, D.D.S., Somerville, N. J.

Membership Committee—Dr. Oscar Adelberg, Elizabeth, N. J.; William G. Gelston, D.D.S., Camden, N. J.; Henry Fowler, D.D.S., Harrison, N. J.; William T. Thompson, D.D.S., Asbury Park, N. J.; Thomas F. Martin, D.D.S., Rahway, N. J.